

UNIVERSITY OF BAHRAIN

College of Business
Administration



Department of
Management & Marketing

An Empirical Study of Human Resources Analytics and Organizational Triple Bottom Line with Reference to Public Sector Entities of the Kingdom of Bahrain

A Thesis Submitted in Partial Fulfilment of the Requirements for
M.Sc. in Human Resource Management

Submitted by:
Muneera Khaled Al Jaber
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Supervised by:
Dr. Shaju George
Associate Professor
University of Bahrain

Kingdom of Bahrain
May 2023

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The student is awarded a grade **Pass / Satisfactory** in the thesis subject.

- ☐ Without making any changes to the thesis.
- ☒ After making the modifications attached with this decision.

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Abstract

This empirical study examines the impact of human resources (HR) analytics on the organizational triple bottom line (TBL) in the public sector of Bahrain. The study adopted a quantitative research method with the target population of employees of public sector in Bahrain. A questionnaire was administered, and 411 responses were attained, and the data was analysed using SPSS software. The research questions addressed the impact of HR analytics, analytical skills of HR professionals, HR data availability and management buy-in on TBL in Bahrain. Objectivism was adopted as the ontology and positivism as the epistemology to understand the impact of HR analytics through analytical skills of HR professionals, HR data availability and management buy-in on Triple bottom line. The results showed that HR analytics significantly impacted TBL, and the variance in TBL can be explained by HR data availability, analytical skills, and management buy-in. The study also found that analytical skills of HR professionals and management buy-in significantly predicted TBL. The study provides insights for public sector entities in Bahrain to improve their TBL through the adoption of HR analytics, enhancing analytical skills of HR professionals, ensuring the availability of credible HR data and increasing management buy-in towards TBL.

Abstract (Arabic)

تبحث هذه الدراسة التجريبية في تأثير تحليلات الموارد البشرية على الحد الأدنى الثلاثي التنظيمي (TBL) في القطاع العام في البحرين. اعتمدت الدراسة منهج البحث الكمي مع السكان المستهدفين من موظفي القطاع العام في البحرين. وأجرى استبيان، وتلقى 411 رداً، وحللت البيانات باستخدام برمجيات SPSS. تناولت أسئلة البحث تأثير تحليلات الموارد البشرية، والمهارات التحليلية لمتخصصي الموارد البشرية، وتوافر بيانات الموارد البشرية ومشاركة الإدارة في TBL في البحرين. تم اعتماد الموضوعية التي تحدد وتوضح الكيانات والمفاهيم التي الناس تحدث عنها ودراستها، ويحدد العلاقات الأساسية بين تلك المفاهيم والموضوعية الثانية هي لدراسة المجتمع بشكل خاص على الأدلة العلمية التجريبية، مثل التجارب والإحصاءات الخاضعة للرقابة لفهم تأثير تحليلات الموارد البشرية من خلال المهارات التحليلية لمتخصصي الموارد البشرية، وتوافر بيانات الموارد البشرية ومشاركة الإدارة في خط الأساس الثلاثي. أظهرت النتائج أن تحليلات الموارد البشرية أثرت بشكل كبير على TBL، ويمكن تفسير التباين في TBL من خلال توفر بيانات الموارد البشرية والمهارات التحليلية ومشاركة الإدارة. ووجدت الدراسة أيضاً أن المهارات التحليلية لمتخصصي الموارد البشرية ومشاركة الإدارة تنبأت بشكل كبير بـ TBL. تقدم الدراسة رؤى لكيانات القطاع العام في البحرين لتحسين TBL من خلال اعتماد تحليلات الموارد البشرية، وتعزيز المهارات التحليلية لمتخصصي الموارد البشرية، وضمان توافر بيانات الموارد البشرية الموثوقة وزيادة مشاركة الإدارة تجاه TBL.

Dedication

This research is dedicated to my exceptional parents, who have given me so much, who gave me hope and strength when I wanted to give up, and who continue to provide me with moral, emotional, and financial support.

Acknowledgement

I would want to express my gratitude to my supervisor Dr. Shaju George for his unwavering support and direction throughout this endeavor. Thank you for your encouragement and useful advice; I shall be eternally grateful.

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
AI	Artificial Intelligence
BIPA	Bahrain Institute for Public Administration
CSR	Corporate Social Responsibility
GDPR	General Data Protection Regulation
HR	Human Resources
HRIS	Human Resources Information System
HRM	Human Resources Management
SPSS	Statistical Package for the Social Sciences
TBL	Triple Bottom Line

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CHAPTER ONE- INTRODUCTION TO THE RESEARCH STUDY

1.1 BACKGROUND

The field of human resource (HR) analytics is currently gaining considerable momentum within the context of business. Organizations are employing data analytics techniques to enhance the accuracy of their decision-making processes. Strategic planning over an extended period is a crucial factor in enhancing the overall efficacy and productivity of an entity, thereby promoting its effectiveness and efficiency. In order to make sound decisions pertaining to personnel issues, it is vital to conduct an in-depth review, assessment, and investigation of all relevant data pertaining to the workforce of an entity. Prioritizing analytics can confer a competitive edge to an organization vis-à-vis its competitors and enhance the value proposition of its business activities. If a company neglects to assess past information associated to its personnel, it runs at risk of formulating inaccurate assessments regarding their affairs.

The primary objective of an organization is to integrate all of its individual parts, each of which performs a distinct function. Every function plays a role in attaining the overall goal of the organization. According to Hargrove's (1915) perspective, achieving predetermined objectives is an essential aspect of human existence. The term "organization" is believed to have originated from the ancient Greek noun "organon". The system in question is designed with intention and operates with both formal and informal structures to fulfil a particular purpose. As per the CRIEPI Report of 2006, the aforementioned is the database of initiatives undertaken to achieve particular goals.

As per Barnard's definition, a formal organization is a result of a conscious and deliberate effort of individuals to collaborate with a specific purpose. According to March and Simon's perspective, organizations are comprised of individuals who interact with one another. According to Dzimbiri (2009), Etzioni's perspective regards an organization as a social entity that strives to

achieve a particular objective. Pareek (1997) asserts that the evaluation of human resource development functions is deficient as crucial components and practices are being overlooked. The assessment of an organization's internal mechanisms and their influence on the company's overall achievement is infrequently conducted.

Singh (2000) conducted a study aimed at investigating the relationship between investments in human resource systems and the success of firms operating in India. The findings revealed that the firms did not perceive any correlation between the two variables. Research has demonstrated a positive correlation between human resource practices and organizational performance. The aforementioned observation highlights the positive impact that the inclusion of human resources as crucial components can have on enhancing the overall performance of an organization. The identification of organizational success necessitates the management to depend on precise metrics that can furnish conclusive proof of the degree of performance and efficiency. The Triple Bottom Line (TBL) framework is a useful tool for assessing performance, as it encompasses three key indicators: economic, social, and environmental. The utilization of these metrics serves the purpose of assessing their overall performance and generating increased business value, as posited by Dawoud and M. Shehata (2021).

However, there is a need for collecting accurate data to be able to adopt this analytical framework and reach clear judgments about organizational sustainable performance. One very important source for this data is the Human Resources of the organization. Previous research assumes that in order to assess organizational performance through the TBL framework, there is an essentiality to find accurate data. This data is considered as meaningful insights and evidence-based data that is represented in an analytical manner. It is also considered as a key factor to organizational success. HR analytics represent a source for

understanding how well the organization's sustainable performance is. Despite the significance of HR analytics and its moderating factors, there is still an evidential shortage in the empirical evidence indicating the impact of HR analytics on organization performance measured by the TBL framework especially in the public sector organizations in the Kingdom of Bahrain (Dawoud & M.Shehata, 2021).

According to Etukudo (2019), the incorporation of analytics in human resource (HR) management has demonstrated a positive impact on organizational performance. This is evidenced by a reduction in workforce expenses, an improvement in the quality of recruitment, an enhancement of talent management and employee engagement, as well as an overall increase in productivity. According to Momin and Mishra (2016), HR analytics is an innovative technology that has the potential to revolutionize human resource management, rather than being a mere fanciful idea. The utilization of HR analytics enhances the effectiveness and productivity of interconnected components within the human resources department, thereby contributing value to its operations. Analytics is a potent tool that can impact HR practices, policies, and the performance of human resource departments, thereby providing significant value to businesses. According to Angrave et al. (2016), the field of analytics involves interdisciplinary collaboration with various fields such as computer science, engineering, and science.

1.2 RESEARCH PROBLEM

Several areas that appear to be lacking in terms of research and focus when it comes to HR analytics in Bahrain and its impact on organizations. Firstly, it is worth acknowledging that HR analytics is still an emerging field and as such, there are certain gaps in terms of research and understanding of its implications. Regarding the first point, there is lack of focus on the implications of HR analytics

across various sectors. This can be attributed to the fact that HR analytics is still a relatively new concept that requires more exploration and scrutiny.

Furthermore, it is also evident that there are limited studies on HR analytics in Bahrain, specifically when it comes to the public sector. This may be a result of the lack of awareness of the potential benefits that data-driven HR strategies can have for organizations.

In addition to these, studies on the impact of HR analytics on the TBL is also limited, which could mean that organizations in Bahrain may not be fully aware of the long-term benefits of implementing these strategies.

Another critical area that require more research is regarding the acceptance of HR analytics from top management. HR analytics can provide crucial insights that can help organizations make informed decisions, but if top management is not interested in adopting these data-driven strategies, it can hinder the organization's growth.

Lastly, it is worth noting that the quality of HR data is critical concerning its impact on TBL. organizations need to understand the importance of keeping data up-to-date and accurate to make informed decisions that positively affect their performance metrics. Additionally, HR professional analytical skills are crucial for any organization seeking to implement advanced HR analytics strategies as such there is limited studies highlighting its importance and impact on the organization's performance. It is important for organizations to improve employee abilities and re-renovate their teams in the field of HR Analytics. It also emphasizes the use of Artificial Intelligence (AI) in various HR Management operations and specifies the barriers to employee adoption of HR technology (Arora et al., 2021).

Overall, these are research problem areas that require more attention and research to ensure that businesses in Bahrain can harness the full potential of HR analytics and remain competitive in the current business environment. According to Colbert and Kurucz (2007), linking HR concepts to a company's triple bottom line sustainability goals can result in a sustained competitive edge and the development of competencies for positive transformation across economic, social, and environmental domains.

1.3 RESEARCH QUESTIONS

The following questions were specifically aimed to seek answers in the entire course of the study:

- (1) What is the impact of HR analytics in proposing solutions that are anticipated to be implemented in the Kingdom and its impact on the organizational triple bottom line?
- (2) What is the contribution of Analytical Skills of HR Professionals on the organizational triple bottom line in the public sector in the Kingdom of Bahrain?
- (3) What is the impact of Management Buy-in on the organizational triple bottom line in the public sector in the Kingdom of Bahrain?
- (4) What is the impact of HR Data Availability on the organizational triple bottom line in the public sector in the Kingdom of Bahrain?

1.4 RESEARCH SIGNIFICANCE

When data analysis is conducted, the researcher expects to reach specific outcomes based on what exists in the literature about the topic. HR Analytics is projected to be the next "must-have" innovation in the Kingdom's public sector

HR function. In the public sector HR department, the HR Analytics execution has a moderate level of efficacy. However, not all the sub-variables produced from HR analytics are projected to be fairly useful. For example, it is assumed that HR practitioners in the public sector HR department will have a low degree of effective analytical skills. Yes, both HR data availability and management buy-in are projected to be extremely beneficial. In terms of the dependent variable, organizational triple bottom line, it is projected to be highly effective. The researcher aims to discover "a significant impact of HR analytics on the organizational triple bottom line in the public sector in the Kingdom of Bahrain."

1.5 RESEARCH RATIONALE

In contemporary times, the HR department is often equated with personnel and seen as taking on ad-hoc tasks. However, this conception is incorrect. HR possesses considerable potential to obtain a place at the executive table, whereby it can contribute to decisions that steer the organization towards success. For this reason, a study is necessary to aid HR practitioners in identifying where they must improve their skills, gain a firm grasp of data-driven decision-making, and earn their seat at the table while guiding the organization's growth.

Overall, this study is crucial in enlightening both HR professionals and top management on how HR's role is integral to driving an organization's progress in today's world. This explains the reason for including the TBL framework in this study to measure the relationship clearly.

1.6 RESEARCH OBJECTIVES

The research objectives of this study are as follow:

- 1) To highlight the impact of HR analytics in proposing solutions that are anticipated to be implemented in the Kingdom and its impact on the organizational triple bottom line.
- 2) To study the contribution of Analytical Skills of HR professionals on the organizational triple bottom line in the public sector in the Kingdom of Bahrain.
- 3) To determine the impact of Management Buy-in on the organizational triple bottom line in the public sector in the Kingdom of Bahrain.
- 4) To examine the impact of HR Data Availability on the organizational triple bottom line in the public sector in the Kingdom of Bahrain.

1.7 RESEARCH SETTING

This study will be conducted in the Kingdom of Bahrain and will include all public entities in different sectors. Sectors targeted are as follow: Tourism, Healthcare, Finance, Telecommunications, Education, Utilities & Others. HR Practitioners will be reached through one database in the kingdom of Bahrain: the Bahrain Institute for Public Administration (BIPA). This government institution maintains comprehensive records on all government employees in HR departments across all sectors. HR professionals will be contacted via email to participate by filling out a questionnaire.

1.8 RESEARCH KEY TERMINOLOGIES

Following the study's background information, key definitions of the most common terms discussed in the research are provided:

Human Resource Management (HRM): Armstrong and Taylor (2014) define human resource management as a systematic and integrated approach to

managing an organization's most valuable assets, namely its employees, who play a crucial role in achieving the business's objectives.

HR Analytics: "It emphasizes the use of evidence-based data, statistical methods, and analytics to optimize human capital outcomes" (Boudreau, J. W., & Cascio, W. F., 2017). HR analytics involves using data to make informed decisions about talent management, such as recruitment, retention, and training.

Triple Bottom Line (TBL): is a sustainability framework that takes into account three important elements - economic, social, and environmental - rather than just focusing on financial performance. Here's a scholarly definition of TBL: "The triple bottom line emphasizes that businesses must be accountable not only for economic benefits but also for environmental and social ones. These three goals need to be pursued together and simultaneously"(Elkington, J., 1997).

Human Resource Information System (HRIS): It is a software or web-based application designed to manage and organize a company's human resource operations. It typically includes features for managing employee data, tracking employee time and attendance, handling payroll and benefits, tracking employee performance, and managing employee training and development (Svahn, S., & Bjornberg, S., 2017).

Statistical Package for the Social Sciences (SPSS): It is a widely used software tool for statistical analysis in the social sciences. It provides a range of data analysis and statistical tools to help researchers examine and analyze large sets of data. With SPSS, researchers can perform data management, data analysis and presentation of results (Field, A., 2013).

Corporate Social Responsibility (CSR): Refers to a company or organization's ethical and responsible behavior towards the community, the environment, and its stakeholders. Essentially, it involves voluntarily going above and beyond what

is legally required in order to contribute positively to the larger society (Cirman & Oberstar, 2020).

Bahrain Institute for Public Administration (BIPA): It is a public institution established in 2006 with the aim of enhancing the capabilities of public employees and promoting professional development in the public sector in Bahrain. Its mandate includes conducting research, providing training, and facilitating knowledge sharing to improve the quality and effectiveness of public service delivery in the country (Al-Haddad & Elasha, 2019).

1.9 SUMMARY OF THE CHAPTER

The public sector in the Kingdom of Bahrain should reach to a tipping point in its HR strategy, with the ability to make quick decisions when agility is required, based on concrete metrics, predictions, and facts rather than feelings and emotions. In order to do so, this research should take place to identify the lacking areas and recommend ways and solutions to improve. This research should be conducted in order to identify the areas that are deficient and to offer approaches and solutions to improve them. In the end of this research all references mentioned will be in APA referencing style.

CHAPTER TWO: THEORITICAL FRAMEWORK AND LITERATURE REVIEW

2.1 INTRODUCTION

According to Becker, Huselid, and Beatty (2009), in a progressively competitive global environment, companies must make prudent investments in human capital to establish and sustain a competitive edge. According to Huselid (2015), the effective utilization of analytics can be a powerful contributor to the development of successful and sustainable organizations, particularly when closely aligned with the organization's business strategy. Beatty (2015) similarly suggests that effective analytics use may be a key factor in the creation of strong and enduring companies.

The application of causal theories, study design, and statistical analysis within organizations is integral to the field of HR analytics. Casio and Boudreau (2011) assert that the information provided not only meets the required statistical standards but also strikes a balance between statistical rigor and practical applicability. Additionally, the authors suggest that the information enhances the analytics competencies within the business. The development of HR analytics in organizations typically involves an examination of three key components, namely data, analytics, and organizational actions. This assertion is supported by various scholars such as Davenport, Harris, and Shapiro (2010), Huselid (2015), and Rasmussen and Ulrich (2015). The aforementioned components are succinctly categorized as "data availability," "analytical skills," and "management buy-in."

The utilization of people data is widely recognized as a crucial means of providing evidence to facilitate informed decision-making. This is due to the fact that it furnishes executives, HR professionals, and line managers with pertinent information that can be utilized to support the workforce and conduct HR Analytics (Houghton and Green, 2018). Contemporary discourse in the field of human resources acknowledges the potential of analytics to not only transform HR practices, but also to impact the overall influence of HR within organizations (Andersen, 2017). According to Van der Togt and Rasmussen (2017), analytics

has been recognized as a significant factor that can revolutionize the future of HR. The adoption rate of HR Analytics by firms is reportedly quite low, as indicated by Boudreau (2017) and Marler and Boudreau (2017).

As per a recent survey conducted by KPMG (2019), which involved over 1,200 HR executives, it was found that a majority of HR executives (70%) acknowledge the necessity of workforce transformation. However, only a third of them (37%) exhibit a high level of confidence in HR's potential to effectuate transformation and facilitate progress through crucial competencies such as analytics. Moreover, a mere 20% of Human Resources (HR) executives hold the belief that analytics will constitute a primary HR undertaking for them within the forthcoming one to two years, while a mere 12% regard analytics as a foremost management preoccupation.

According to a recent report by OrgVue (2019, p.3), many companies acknowledge the significance of people analytics and no longer consider it a mere optional feature. However, they seem to lack the necessary confidence to utilize data or adopt a new perspective towards their workforce, which involves assessing "work and value" instead of "people and expense."

To summarize, organizations are encountering challenges in the implementation of human resources analytics. According to KPMG's report for 2019, workplace culture is identified as the primary obstacle to digital transformation. The hindrance to progress in this regard is attributed to insufficient analytical skills as well as inadequate software and technology, as reported by OrgVue (2019) and Deloitte (2019). As per the findings of McIver et al. (2018), executives acknowledge the potential of the technology while simultaneously expressing uncertainty regarding their respective organizations' preparedness for its implementation. Regrettably, the absence of confidence and confusion among HR executives in embracing analytics is reflective of the inconsistency in HR analytics literature with regards to approach, nomenclature,

and outcomes. There exists a paucity of literature pertaining to the adoption of analytics within the domain of human resources, let alone its potential challenges with respect to adoption.

Moreover, the limited literature on the impediments to the adoption of HR analytics primarily adopts an individualistic viewpoint, as exemplified by Vargas et al. (2018), thereby neglecting other pertinent organizational factors. Undoubtedly, there has been a notable surge in scholarly and practical interest in the application of analytics to HR in recent years, as evidenced by the works of Huselid (2018) and Marler and Boudreau (2017).

Unfortunately, the persistent lack of clarity surrounding the constituents of analytics in human resource management (HRM), coupled with a dearth of understanding regarding the factors that impede its adoption by businesses, has constrained the expansion of the field and the development of universally recognized benchmarks. This study presents the results of a systematic literature review on the application of analytics in the field of human resources, thereby making a valuable contribution to the existing body of literature on HR analytics. This study addresses the research gap identified by Marler and Boudreau (2017) and Minbaeva (2018) regarding the factors that impede the adoption of analytics by firms within an organizational context.

The primary focus of this study is to investigate the impact of HR analytics on the triple bottom line of public sector organizations in the Kingdom of Bahrain. In order to address the inquiry, it was necessary to establish a clear definition of HR analytics, given the diverse nomenclature employed to denote analytics applied to human resources. Alternatively, we have also explored the research inquiry, "What is the scope of HR analytics?" The objective of this inquiry is to provide clarity on HR analytics and equip corporate and human resource executives in the Kingdom of Bahrain with the necessary knowledge to make well-informed choices concerning the integration and execution of HR

analytics. Furthermore, our objective is to aid HR researchers, whether they are aspiring or active, in clearly situating their work within current discussions and to prompt them to contemplate the most effective ways to employ analytics.

The HR Analytics literature reveals the identification of three crucial conditions, commonly referred to as moderators, that significantly impact the performance of HR Analytics. The possession of analytical skills by HR professionals has been identified as a crucial factor in the literature (Angrave et al., 2016; Bassi, 2011; Giuffrida, 2014; Levenson, 2011; Mondare et al., 2011; Rasmussen & Ulrich, 2015). Additionally, gaining managerial buy-in has been recognized as another important aspect (Coco et al., 2011; Giuffrida, 2014; Levenson, 2011; Rasmussen & Ulrich, 2015). Furthermore, the availability of HR information technology has been cited as a further example (Angrave et al., 2016; Aral et al., 2012; Douthitt & Mondore, 2014).

2.2 HR ANALYTICS

Technology has rapidly transformed businesses and their processes in the past two decades. The rapid advances in technology have meant new and innovative ways of doing business and increasing performance. Human resource management (HRM) has transformed in recent years because of the need for organizations to develop long-term strategies that benefit the workforce (Levenson, 2005). HRM also perceives employees as tools that need to be nurtured and supported. Furthermore, HRM is not only concerned with administrative and personnel duties but it is also entrusted with achieving the strategic goals and objectives.

Organizations must adopt a comprehensive approach to human resources management in order to attain success, as posited by Levenson (2005). The concept of HR analytics pertains to a data-driven methodology that organizations can utilize to facilitate decision-making and actions related to personnel matters. Strategic HR decisions are achieved through the application of objective facts

and logical analysis. Furthermore, HR analytics can provide valuable insights to organizations for effective employee management and attainment of organizational objectives. According to Fernandez and Gallardo-Gallardo (2020), HR analytics employs a rational and methodical approach to analysis. Furthermore, it utilizes human resources-related data to facilitate business and strategic decision-making.

The prevailing notion derived from the aforementioned definitions is that HR analytics employs diverse methodologies and tools. The utilization of human resources and business-related data is employed to evaluate tasks pertaining to personnel, performance attributes, and levels of engagement. Moreover, it has the potential to foster a transparent and robust organizational culture. According to Tomar and Gaur's (2020) research, HR analytics pertains to a methodology that relies on empirical evidence to inform decision-making processes related to personnel management. The utilization of systematic methodologies for the examination of data fulfills the requirements of managerial personnel by furnishing them with prompt and up-to-date information. The implications of HR analytics are that it involves the utilization of both internal and external data sources, as well as HR workplace information, to produce a range of ratios, metrics, and reports pertaining to the workforce. The focus is placed on the past as it provides insights into the personnel, as noted by Tomar and Gaur (2020). This information may be analyzed within the context of the company's future objectives and commercial aspirations.

Furthermore, analytics is concerned with data-driven insights and decisions. It uses statistical techniques, data mining, and advanced algorithms that can review process and workflow data. Predictions and scenarios can be made to achieve strategic success. The availability of large and diversified HR data in recent years has helped to enhance the ability of HR analytics to become a strategic tool for success (Tomar & Gaur, 2020).

HR analytics has become a powerful and robust discipline that has a proven impact on business outcomes. It can exert a profound influence on operational and strategic decision-making. Moreover, it helps to link HR with data and IT infrastructures across organizational boundaries. Ben-Gal (2019) finds that digital technologies and data science techniques have become advanced in recent years. Consequently, this means that it is essential for companies to take advantage of HR analytics as a strategic tool. Such an approach helps to achieve strategic success and growth. It ensures that companies will be able to overcome competition and maintain their competitive advantage (Ben-Gal, 2019).

Falletta & Combs (2020) suggests that HR analytics can be applied for the hiring process and entire workforce planning and management proves. It can be used for attracting, acquiring, and developing employees. For instance, technologies like artificial intelligence (AI) and big data analytics can be used for turnover prediction, candidate search, staff rostering, and resume data acquisition. The implications are that HR analytics are powerful and robust tool that can be used for enhancing the strategic capabilities of organizations. Moreover, they can develop effective approaches for strategic growth and development (Falletta & Combs, 2020).

Human resource management has been considered as a capital-intensive activity that increases costs for organizations. Conventional policies tended to focus on increasing efficiency without any emphasis on the impact of policies on business. However, HR analytics is a tool that helps to promote the welfare of the workforce. It is more than efficiency because it focuses on defining the effectiveness of the HR function.

Research finds that HR analytics helps organizations to define the effectiveness of the HR function by asking questions such as whether managers can be developed into effective leaders or whether the sales training is increasing the sales performance (Greasley & Thomas, 2020). Another study suggests that HR analytics helps the HR function by providing extensive knowledge about HR

policies and programs (Dahlborn et al, 2020). It helps evaluate the success or failure of programs and policies. In other words, the impact of organizational programs and policies can be deduced through the use of HR analytics.

The implications of the above researches are that HR analytics can help to interpret data and information. Managers that use evidence-based practices to measure and impact the performance in the organizations will use HR analytics to interpret the results and gain long-term understanding of the impact of programs (Dahlborn et al, 2020). Any problems or defects in the program can be countered by implementing new strategies or addressing the root causes of the problem.

The HR function in contemporary times has transformed into a strategic tool where organizations need to identify labor requirements and implement workforce planning for the future. Different skills are needed for maintaining the competitive advantage of organizations. The workforce is the element that changes the fastest. Another important aspect is that the top performers must be evaluated and identified quickly.

Research finds that HR analytics can be used for playing a strategic role (Mayo, 2018). This helps organizations to identify their future needs and take effective steps to reduce gaps. Another study concludes that HR analytics helps to create a strategic role that can generate added value (Lengnick-Hall et al, 2018). This is done by identifying and recruiting talented performers and building a stronger and more suitable workforce. This adds to the long-term profitability of the company. The above implies that HR analytics is a tool that supports the strategic function of HR. It helps to identify the right people in the right place at the right time. It can support product quality and enhance team performance. Moreover, it can enhance the innovative capabilities and customer services of the company. In essence, it can be utilized for achieving the strategic goals of the organization. Such an approach helps to achieve efficiency and effectiveness. It creates a collaborative environment for success.

The power of HR analytics lies in its capacity for growth and potential as an established discipline that has demonstrated a significant impact on business outcomes. The aforementioned factor has the potential to impact both strategic and operational decision-making processes in subsequent years. The advancement of HR analytics in the future is anticipated to be driven by the prevalence of merging employee data with data from other business units or departments.

2.2.1 HR ANALYTICAL SKILLS AND HR PROFESSIONALS

HR professionals need to have a number of analytical skills so that they can use HR analytics as a tool for strategic growth and success. Specifically, they need multiple skills that provides them with knowledge and expertise to work efficiently. Noack (2019) finds that HR professionals must have knowledge of the business environment. The reason is that analytics does not only add value, but it also solves a business problem.

Ng & Poquet (2020) concludes that HR professionals need to use analytics to solve key strategic issues of an organization. Real business issues need to be given priority to avoid distracting the business and being involved in irrelevant numbers. Marr (2018) suggests that HR professionals need to gather data that will influence decision making. The analytics plan must be connected with the company's strategic challenges. This helps analytics to achieve its purpose and become relevant. The above researches imply that HR professionals are not only concerned with the skills to manage the HR function, but they have to understand business problems and strategic challenges. They need to link analytics with the core business problems so that insights can be used for solving problems (Marr, 2018). Such an approach requires systematic planning and preparation. The HR team must work to use insights and analytics for decision making. They need to

give proper forecasts once they have adequate knowledge of the business environment.

HR professionals need to utilize HR analytics in such a way that they understand how data will be used by the business. In other words, they need to know how, and which data can provide value to the business. Lochab & Kumar (2020) finds that HR professionals need to have robust understanding of the core business environment. They need to use insights that can interpret and sort out the useful data which would be used to achieve strategic success.

Dhanpat et al (2020) concludes that meaningful change can occur only when HR can translate numbers into tangible insights. The implications are that analytics have to be marketed and presented effectively to the upper management. However, this is a complex process as the data must be sorted and interpreted by HR professionals before it can be presented to the management. Barboza (2019) finds that presenting data can be done through visual or presentation methods. It could also involve written format. This must be done in accordance with the audience and the needs of the organization. The presentation must be clear and easy to understand (Barboza, 2019). The above skills are vital for HR professionals because they have to work with different departments, business units, and upper management. Essentially, the ability to present insights and data helps other business units and departments to make critical decisions. They can manage the employees and create cohesive teams for strategic success. They can also develop effective strategies to achieve strategic growth and success.

HR professionals also need to link their HR skills and competencies with HR analytics. This helps to analyze factors about employees' behaviors and motivations. Genetic attributes, personality, and environment influence the way people act. Understanding these factors exert influence and HR analytics provides information about how these influential processes work. Research finds that HR analytics could be used to understand the reasons for employee turnover, reduced

productivity, and distrust levels (Minbaeva, 2018). For instance, HR professionals using analytics could identify links between problems and causes.

Consequently, the insights can drive to make changes in the work environment. Another research suggests that HR personnel need to have background in social sciences to identify specific relevant personnel factors (Minbaeva, 2018). They also need to understand evidence-based practices related to HR. This helps in providing insights in existing HR processes. Consequently, the information can be collected in specific findings and help firms to improve HR processes. These processes can be augmented that help firms to achieve strategic competitive advantage (Minbaeva, 2018). Another study finds the necessity to connect traditional HR with HR analytics (Lawler & Boudreau, 2018). Integrating both functions will provide insights for the growth and development of organizations. It can develop a collaborative environment through which change, and innovation can be promoted.

The importance of the above research is that HR personnel need to use HR practices and knowledge for recommendations to improve HR practices. Moreover, they can utilize HR analytics as a strategic tool that can retain employees and fulfill their needs and requirements (Lawler & Boudreau, 2018).

The literature emphasizes that HR professionals need to have knowledge of statistics and data analysis methods. Statistics are important for interpreting and evaluating data from analytics. Various data streams are found which means that only meaningful and important data can be extracted and utilized for the organization. Research finds that HR personnel need to work with software like Excel or SPSS to extract and interpret data (DiClaudio, 2019). Various themes and insights can be obtained from the above software.

Another study finds that data analysis and visualization software skills are important for HR professionals (McIver et al, 2018). In other words, professionals need to work on simple relational analytics like correlation and regressive analysis. They also have to work on complex models such as predictive analytics

and data mining techniques. This requires sound knowledge of statistics (McIver et al, 2018). Based on the analysis, it can be concluded that HR professionals need to have several skills to use HR analytics. These skills are related to HR, business, statistics, and marketing. Each skill must be thoroughly developed and applied because analytics provides different types of benefits for organizations (McIver et al, 2018). It is important for HR professionals to upgrade their knowledge and skills so that they can utilize HR analytics for success and growth. Such an approach helps to achieve the strategic goals of an organization.

2.2.2 MANAGEMENT SUPPORT

The management support is crucial for the integration of HR analytics in the organizational environment. The reason is that management helps to identify goals for the long-term and they involve the HR department in the strategic planning and development processes (Prejith & Kumar, 2022). Consequently, they can use HR analytics as a strategic tool for growth and development. Management must have the expertise and skill to understand the needs of the workforce. They must identify the core capabilities that an organization needs from the workforce to achieve strategic success (Prejith & Kumar, 2022). With the use of HR analytics, management can develop a list of desired competencies and capabilities that they want in the workforce. Consequently, they can identify gaps in existing competencies and capabilities which would lead to strategic success for the organization (Nair, 2018). Management can also focus on using analytics for their programs. This helps to identify the value of analytics in the organization. They can encourage others to use data for insights and evaluations.

Managers can create cross-functional teams that frequently use HR analytics to bring innovative thinking to projects. The HR department can be motivated to frequently utilize data analytics as a tool for strategic growth and

change (Nair, 2018). Other types of activities where managers can get involved is to create programs that utilize HR analytics for success and growth.

Research states that managers can use analytics tools to identify employee performance benchmarks (Werkhoven, 2019). The information could be utilized for coaching existing and incoming employees. The program could be beneficial for new employees because they become quickly acquainted with the culture that encourages using analytics for decisions and interpretation. The implications are that managers need HR analytics to analyze human performance data and help workforce to boost their professional performance (Werkhoven, 2019). They can also gather information on employee well-being and implement employee engagement programs effectively.

Managers can use HR analytics as a tool to predict which employees are more prone to leave. They can provide information about the factors that contribute towards attrition. The information obtained could be utilized by organizations to develop employee engagement strategies (Yoon et al, 2020). For instance, managers could create open and transparent environment where employees can express their views and grievances. Open communication could be strengthened when managers use analytics for people management (Hamilton & Sodeman, 2020). HR analytics could be potentially utilized for retaining employees and reducing employee turnover rates. For instance, at-risk workers could be identified. Employee wellness programs could be launched while HR policies and programs could be changed to accommodate the needs of the workforce and improve their satisfaction and commitment levels (Hamilton & Sodeman, 2020). HR analytics could also meet the training needs of managers. Analytics can reveal weaknesses in managerial competencies and provide organization with data to launch training and development programs.

Management support is a critical element in encouraging a data-driven culture within an organization. It involves the leadership team's understanding of the value of HR analytics in decision-making, strategic planning, and

development processes. HR analytics refers to the practice of using data and statistical analysis techniques to gain insights into various aspects of an organization's human resource management processes, such as recruitment, retention, training and development, employee engagement, and performance management (Prejith & Kumar, 2022).

To fully leverage the benefits of HR analytics, organizations need to embrace a data-driven culture, where data and insights are regularly used to inform decision-making. This is where management support comes in; it plays a crucial role in fostering a culture of data-driven decision-making by demonstrating the value of HR analytics to the organization's overall strategy and goals.

One way in which management can support the integration of HR analytics is by creating cross-functional teams that frequently use analytics to bring innovative thinking to projects. Such teams can help to identify new opportunities and risks and develop solutions that are grounded in data-driven insights. By promoting the use of analytics in this way, management can motivate the HR department to frequently utilize data analytics as a tool for strategic growth and change.

Furthermore, managers can use HR analytics to identify employee performance benchmarks. This can be done by analyzing employee data such as performance metrics, training records, and career development plans. This information can then be used for coaching existing and incoming employees, helping them to identify areas for improvement and develop their skills and competencies further. In addition, these benchmarks can be used to identify potential areas of improvement for the organization, helping to drive strategic growth and change.

New employees can benefit significantly from a data-driven culture that encourages the use of analytics for decision-making and interpretation. By

providing coaching and training based on analytics insights, new employees can quickly become acquainted with the organization's culture of using data to inform decisions. This can help them to integrate into the organization faster, become more productive, and ultimately, contribute more to the organization's overall success.

Another area where management can support the integration of HR analytics is by using analytics to predict employee attrition. By analyzing data on factors such as employee satisfaction, engagement, and performance, managers can identify employees who are at risk of leaving the organization. This information can then be used to develop employee engagement strategies, such as creating a more open and transparent environment where employees can express their views and grievances. Additionally, HR analytics can be used to identify areas where HR policies and programs can be changed to better accommodate the needs of the workforce, leading to improved satisfaction and commitment levels.

Finally, HR analytics can be used to meet the training needs of managers. Analytics can reveal weaknesses in managerial competencies and provide the organization with data to launch training and development programs that address these areas. This can help to improve the overall effectiveness of the management team, leading to improved performance across the organization.

In conclusion, management support is crucial for the integration of HR analytics in the organizational environment. By demonstrating the value of analytics in decision-making, strategic planning, and development processes, management can encourage a data-driven culture within the organization. By creating cross-functional teams, analyzing employee performance benchmarks, identifying at-risk employees, and meeting the training needs of managers, organizations can fully leverage the benefits of HR analytics to drive strategic growth and change.

2.2.3 HR DATA AVAILABILITY

HR analytics is successful when data is successfully identified and interpreted by the HR department and management. Furthermore, the data needs to be available so that organizations can monitor and review various aspects of the organization. According to Heuvel and Bondarouk's (2017) study, HR analytics is capable of gathering data from various departments within an organization. The data from human resources information systems (HRIS) can be collected which includes employee demographics. The basic data is important for analytics because management needs to have comprehensive information about the workforce in order to implement sound decisions.

According to Hecklau et al. (2016), scholarly investigations reveal that HR data is capable of furnishing crucial information such as an employee's work history, salary, promotion history, training history, and other relevant information. The analytics can also take data from other business units and departments. For instance, data like profits, revenues, and others are also vital for analysis and assessment by HR analytics.

HR analytics provides descriptive, predictive, and perspective analysis for organizations. Research finds that descriptive analytics refers to current and historical patterns (Diez et al, 2019). The focus is on process improvements. HR metrics such as performance outcomes like effectiveness and efficiency are evaluated through HR analytics. These metrics provide management with information about personnel functions like recruitment, learning, development, performance management, talent management, employee benefits and others (Diez et al, 2019). The implications are that descriptive analytics helps the organization to evaluate Research states that HR data such provides information such as employee's work, salary and promotion history, training history, and other vital information (Hecklau et al, 2016). employee productivity and performance. According to Nocker and Sena (2019), HR analytics can be utilized to estimate the profit generated by employees on a yearly or monthly basis.

The implications are that HR analytics uses different types of HR data that can be used for sound management of personnel. Such a strategy helps organizations to boost their human capital management approaches. They can focus on business issues such as sales productivity, workforce effectiveness, and others. The above issues help organizations to maintain their competitive advantage (Nocker & Sena, 2019).

HR analytics can be used for predictive analysis which uses statistical techniques like modelling and data mining. It uses existing and prior data to make forecasts about the future. Perspective analytics use simulation and optimization algorithms to predict outcomes and provide decision options (Tursunbayeva et al, 2018). Management can review alternative impacts and decide which is the best course of action for achieving strategic success. The implications are that HR analytics perform a large role for organizations. They can be used for strategic and operational decisions by identifying connections between employees that contributes to performance (Tursunbayeva et al, 2018).

Additionally, the information that is obtained can be utilized for achieving strategic growth and change. Such an approach will help to achieve efficiency and effectiveness. HR analytics is used for generating value for the organization. Managers need to understand the data and use the results for improving performance. HR data needs to be available for the success of HR analytics. Analytics can use HR and non-HR data to provide information to management. It can provide short-term and long-term information that can be useful in multiple personnel processes and link them with the strategic goals.

HR analytics is an important tool for organizations to improve their workforce management strategies. It helps organizations to collect and analyze data to make informed decisions about their workforce. HR analytics provides descriptive, predictive, and perspective analysis to organizations. It helps them to understand their workforce, evaluate employee productivity and performance, and make strategic decisions.

One of the key advantages of HR analytics is that it allows organizations to collect data from different parts of the business. For instance, data from HR information systems (HRIS) can be collected, which includes employee demographics, work history, salary, promotion history, training history, and other vital information (Tursunbayeva et al, 2018). This information is essential for making informed decisions about personnel functions like recruitment, learning, development, performance management, talent management, employee benefits, and others. Additionally, HR analytics can take data from other business units and departments like profits, revenues, and others, which is important for analysis and assessment by HR analytics.

Descriptive analytics is a category of human resources analytics that concentrates on the examination of present and past trends. The emphasis is placed on enhancing processes. Human resource metrics, such as performance outcomes, specifically effectiveness and efficiency, are assessed through the use of HR analytics. The aforementioned metrics furnish management with data pertaining to personnel functions such as recruitment, learning and development, performance management, talent management, employee benefits, and various other aspects. Descriptive analytics has implications for organizational evaluation of employee productivity and performance. HR analytics can be utilized to infer the annual or monthly profit generated by employees.

The utilization of statistical techniques such as modeling and data mining characterizes predictive analytics, which is a variant of HR analytics (Nocker & Sena, 2019). Utilizing past and present data, prognostications are made regarding future events. Perspective analytics employ simulation and optimization algorithms to forecast potential outcomes and offer decision alternatives. The process of evaluating various impacts and selecting the optimal course of action for attaining strategic success can be undertaken by the management. The findings suggest that HR analytics play a significant role in organizational operations (Tursunbayeva et al., 2018). The identification of connections between

employees that contribute to performance can facilitate strategic and operational decision-making.

HR analytics can be used for generating value for the organization. Managers need to understand the data and use the results for improving performance. HR data needs to be available for the success of HR analytics. Analytics can use HR and non-HR data to provide information to management. It can provide short-term and long-term information that can be useful in multiple personnel processes and link them with the strategic goals (Nocker & Sena, 2019).

Analytics can help organizations to maintain their competitive advantage. For instance, it can help them to focus on business issues such as sales productivity, workforce effectiveness, and others. The above issues help organizations to maintain their competitive advantage. HR analytics can help organizations to identify employee behaviors that contribute to organizational success. By identifying these behaviors, organizations can invest in employee development and training to improve their workforce.

The utilization of HR analytics can facilitate informed decision-making regarding employee compensation within organizations. Through the examination of employee productivity and performance, HR analytics can facilitate the identification of exceptional employees who merit increased remuneration within organizations. This strategy facilitates the preservation of valuable personnel and mitigates the occurrence of employee attrition within organizations.

Furthermore, HR analytics can help organizations to identify potential talent gaps. By analyzing employee data, HR analytics can help organizations to identify areas where they may need to recruit new talent (Nocker & Sena, 2019). This approach helps organizations to maintain a skilled and diverse workforce that can adapt to changing market conditions.

HR analytics can also help organizations to evaluate employee engagement. By analyzing employee data, HR analytics can help organizations to identify areas where employees are disengaged. This approach helps organizations to develop strategies to improve employee engagement, which can lead to increased productivity and employee retention.

Furthermore, HR analytics is a powerful tool for organizations to improve their workforce management strategies. It allows organizations to collect and analyze data to make informed decisions about their workforce (Tursunbayeva et al, 2018). HR analytics provides descriptive, predictive, and perspective analysis to organizations. It helps them to understand their workforce, evaluate employee productivity and performance, and make informed decisions.

One of the key benefits of management support for HR analytics is that it enables the HR department to align their activities with the overall strategic goals of the organization. As Prejith and Kumar (2022) note, management involvement is essential for identifying long-term goals and integrating HR analytics into strategic planning and development processes. By working together with management, HR professionals can better understand the needs of the workforce and develop a list of desired competencies and capabilities that the organization needs to achieve success. This can help managers identify areas where the organization may be lacking in talent and take steps to address these gaps through targeted training and development programs.

In addition to identifying talent gaps, HR analytics can also help managers better understand the factors that contribute to employee engagement and retention. For example, Yoon et al (2020) found that managers can use HR analytics to predict which employees are more likely to leave the organization and develop targeted retention strategies to keep them engaged and motivated. This can include creating a more open and transparent work environment where employees feel comfortable sharing their views and concerns, as well as

launching employee wellness programs to improve overall job satisfaction and well-being.

2.3 TRIPLE BOTTOM LINE

In recent years, business organizations have come under scrutiny because their actions have an impact on the social and environmental factors. Firms can no longer remain oblivious to community and environmental needs. The concept of sustainability is also gaining prominence because the aim is to create an environment where organizations can contribute towards societal good and achieve strategic success. Sustainability seeks to achieve human development needs without depleting resources for the future.

The triple bottom line is an accounting framework that is concerned with social, environmental, and economic responsibility. It is concerned with organizations evaluating their business performance on the basis of the three variables so that they can generate superior business value. Svensson et al (2018) finds that traditionally the focus on businesses have been on profit or loss. In other words, the aim of business organizations is to work on profit maximization of the shareholders. However, there has been criticism that businesses have a negative impact on social and environmental variables.

A broader definition of bottom line has been introduced to hold firms accountable and responsible for their actions. Lopez-Cabrales & Valle-Cabrera (2020) concludes that the triple bottom adds to more bottom lines which are social and environmental concerns. This has become the dominant approach for the business sector so that businesses become responsible and accountable for their needs. The implications are that triple bottom line not only allows firms to engage in economic profits but also makes them responsible for environmental and social concerns. This helps the businesses to meet the needs of society. They also consider other stakeholders besides the traditional shareholders (Lopez-Cabrales & Valle-Cabrera, 2020).

Research finds that the concept of TBL helps organizations to remain committed to stakeholders (Gimenez et al, 2012). The stakeholders are individuals or groups that are influenced directly or indirectly. They can include employees, customers, local residents, government agencies, vendors, and others. The implications are that the business entity must be a vehicle for coordinating stakeholder concerns. Biswas et al (2018) finds that many organizations are now engaged in TBL because of its business benefits such as increased customer retention and access to talented workforce.

Furthermore, TBL helps organizations to reduce costs associated with regulatory or legal mechanisms. Pan et al (2021) finds that social variable is concerned about protecting human capital. It seeks to be fair and beneficial to all the people that are working or concerned with the businesses. This includes fair labor practices and an equitable organizational culture. The implications are that firms will strive to protect local communities by not exploiting or endangering them (Pan et al, 2021). Some firms might even provide opportunities for social development which is consistent with their strategic vision.

Research finds that socially responsible companies can increase participation of workforce from marginalized groups. They can develop schools and health facilities for marginalized communities. Additionally, they can potentially develop social services and infrastructure to support local communities.

Moreover, research finds that environmental dimension is concerned with protecting the environment from harmful business activities (Slaper & Hall, 2011). For instance, companies might engage in practices to reduce energy consumption or they might use environment friendly practices. The use of paperless environment is an example where companies seek to reduce paper which is a precious resource (Slaper & Hall, 2011). Companies might also use energy saving measures or generate electricity through solar or wind technologies that are clean and renewable source. Another example is that companies

encourage recycling of materials. They also reduce wastage and ensure efficient usage of resources. These examples show that companies are working so that they can reduce their carbon footprint and prevent environment deterioration.

Elkington (2013) finds that economic variable is designed to maximize returns to the shareholders while keeping stakeholders' interests during business decisions. Profit maximization is allowed provided it is done ethically and legally under the TBL framework. The benefits are important because private enterprises can work towards contributing towards economic growth and providing jobs to society (Elkington, 2013).

2.3.1 DIFFERENT THEORIES ON SUSTAINABILITY FRAMEWORKS

There are several other sustainability-related theories that have been developed alongside or in response to the Triple Bottom Line (TBL) framework. Here are a few examples:

Developed by Karl-Henrik Robèrt in Sweden, the Natural Step Framework is a sustainability framework that is based on the principles of system thinking and the laws of thermodynamics. It consists of four system conditions that are necessary for a sustainable society: (1) the use of materials in continuous cycles, (2) the use of energy with natural systems, (3) the use of resources fairly and efficiently, and (4) the use of social systems that support these conditions (Broman, et al, 2017).

1. **Doughnut Economics:** Developed by economist Kate Raworth, Doughnut Economics is a framework that aims to create a social foundation and ecological ceiling for economic activity. The framework consists of a doughnut-shaped diagram that illustrates the limits of the planet's resources on one hand and the need to meet the basic needs of all people on the other.

The goal of Doughnut Economics is to find a way to operate within these two limits in a way that is sustainable and equitable.

2. **Ecological Footprint:** The Ecological Footprint is a tool developed by Mathis Wackernagel and William Rees to measure the impact of human activities on the planet. It measures the amount of land and water needed to sustain a population's consumption of resources and absorption of waste. The goal of the Ecological Footprint is to help individuals and organizations understand the impact of their activities and to find ways to reduce their ecological footprint.
3. **Cradle-to-Cradle:** Cradle-to-Cradle (C2C) is a design framework developed by William McDonough and Michael Braungart that emphasizes the importance of creating products and systems that can be reused, recycled, or biodegraded without harming the environment. The goal of C2C is to create closed-loop systems that mimic natural processes, where waste is seen as a resource and products are designed to be reused or repurposed.
4. **Planetary Boundaries:** The Planetary Boundaries framework was developed by a group of scientists led by Johan Rockström and Will Steffen. It identifies nine planetary boundaries that must be respected in order to maintain a safe and stable environment for human societies to thrive. The boundaries include things like climate change, biodiversity loss, and land use change. The goal of the Planetary Boundaries framework is to provide a clear and scientifically based guide for decision-making that takes into account the limits of the planet's natural systems.

2.3.2 CRITICAL ANALYSIS ON TRIPLE BOTTOM LINE

Corporate Social Responsibility (CSR) has been a topic of interest in academia for several decades, and various theories have emerged over time to address the concept of sustainability. The Triple Bottom Line framework is a

theoretical construct that integrates economic, social, and environmental factors. In recent years, this particular theoretical framework has received substantial attention and is widely regarded as the most all-encompassing methodology for achieving sustainability. Alternative approaches to sustainability have been proposed by various theories, including Shareholder Primacy, Stakeholder Theory, and Corporate Citizenship.

In this essay, we will critically discuss these theories, highlighting their benefits and doubts, and explain why TBL is considered better than all of them.

- a) According to the Shareholder Primacy Theory, the primary objective of corporations is to optimize shareholder value. Critics have argued that this particular theory fails to consider the interests of other parties involved, including employees, customers, and communities. Additionally, it has been suggested that the theory places excessive emphasis on immediate financial gains, potentially compromising long-term sustainability. Critics argue that this approach encourages companies to engage in practices that may be detrimental to society and the environment, such as outsourcing jobs, exploiting natural resources, and ignoring human rights violations. However, proponents of this theory argue that it is the most efficient way to allocate resources and create wealth.
- b) Stakeholder Theory, on the other hand, emphasizes the importance of considering the interests of all stakeholders, including employees, customers, suppliers, and communities. This theory suggests that corporations have a social responsibility to promote the well-being of all stakeholders, not just shareholders. However, this theory has been criticized for being too broad and vague, making it difficult for corporations to identify and prioritize stakeholders' interests. Additionally, some argue that this theory places too much emphasis on social and environmental considerations at the expense of economic viability, potentially leading to financial instability.

- c) Corporate Citizenship Theory emphasizes the importance of corporations being good corporate citizens, contributing positively to society and the environment. This theory suggests that corporations have a responsibility to operate in a socially responsible manner, regardless of whether or not it leads to financial gain. However, this theory has been criticized for lacking specificity and clarity, making it difficult for corporations to implement and measure social and environmental initiatives. Additionally, some argue that this approach may not be feasible for all companies, particularly those with limited financial resources.

Despite these criticisms, the TBL conceptualization remains the most comprehensive approach to sustainability. TBL posits that corporations have a responsibility to consider three bottom lines: economic, social, and environmental. The economic bottom line emphasizes the importance of financial viability and profitability, while the social bottom line emphasizes the importance of social responsibility, such as employee welfare and community development. Finally, the environmental bottom line emphasizes the importance of environmental sustainability, such as reducing carbon emissions and preserving natural resources.

The TBL approach offers several benefits, including greater accountability and transparency, improved stakeholder relations, and increased financial stability. By considering all three bottom lines, corporations can identify and prioritize sustainability initiatives that address a wide range of concerns, leading to improved environmental, social, and economic outcomes. Additionally, this approach has been shown to increase innovation and competitiveness, as corporations are forced to find creative solutions that balance economic, social, and environmental considerations.

However, some doubts have also been raised about the TBL conceptualization. Critics argue that this approach is overly complex, making it difficult for corporations to implement and measure sustainability initiatives

effectively. Additionally, some argue that this approach may lead to conflicting priorities, such as the tension between economic growth and environmental sustainability. Finally, some argue that the TBL approach may not be feasible for all corporations, particularly those with limited resources.

Despite these criticisms, the TBL conceptualization remains the most comprehensive approach to sustainability. It has been shown to improve financial performance, stakeholder relations, and environmental sustainability. Additionally, this approach aligns with broader societal values, such as social responsibility.

2.4 HR ANALYTICS AND ITS IMPORTANCE

HR analytics has become increasingly important in the current business scenario due to several reasons. Firstly, in the competitive business environment, it has become essential for organizations to adopt data-driven decision-making approaches.

HR analytics plays a critical role in this by providing insights into employee performance, recruitment trends, and workforce dynamics. These insights enable organizations to take effective and informed decisions regarding their HR strategies, which in turn leads to improved organizational productivity. For instance, HR analytics can help identify areas of improvement in employee performance, measure the impact of HR strategies, and make informed decisions regarding recruitment, employee engagement, and retention.

Secondly, the rise of technology has made it easier for organizations to collect and analyze large volumes of HR-related data. With the help of HR analytics, organizations can develop insights into employee performance, recruitment trends, and workforce dynamics. These insights enable organizations to take effective and informed decisions regarding their HR strategies, which in turn leads to improved organizational productivity. For instance, HR analytics

can help identify the causes of employee turnover, analyze the effectiveness of training programs, and predict the likelihood of an employee leaving the organization.

Thirdly, HR analytics has become critical in managing the workforce during the COVID-19 pandemic. Many organizations have utilized HR analytics to track and analyze employee engagement, productivity, and stress levels. These insights enable organizations to take proactive measures to support their employees during this difficult period. The increasing use of remote work has led organizations to leverage HR analytics as a means of tracking employee productivity, engagement, and well-being. The utilization of this technology has facilitated informed decision-making by organizations with respect to workforce planning and resource allocation within the pandemic.

However, the importance of HR analytics has also raised some concerns. One of the major concerns is the ethical use of employee data.

It is imperative for organizations to adhere to data protection laws and regulations when gathering and evaluating data pertaining to their employees. As an illustration, the General Data Protection Regulation (GDPR) necessitates that organizations secure explicit consent from their employees prior to gathering and handling their data. Moreover, organizations should also be mindful of their employees' privacy when utilizing HR analytics tools to monitor the workforce. To address these concerns, organizations should develop policies for ethical data collection and usage. Organizations must ensure that the data collected is relevant, accurate, and collected with the consent of the employees. They must also ensure that the data is used ethically and in compliance with data protection laws and regulations.

Another concern is the potential misuse of HR analytics. While HR analytics can provide valuable insights into employee behavior and performance, it can also be misused by organizations. For instance, organizations may use HR analytics to discriminate against certain employees or groups based on factors

such as gender, race, or age. To prevent the misuse of HR analytics, organizations should ensure that their HR analytics tools and processes are transparent and accountable. Moreover, organizations should also ensure that HR analytics is used in conjunction with other HR strategies and initiatives.

Furthermore, HR analytics can also raise concerns related to employee autonomy and consent. Some employees may feel uncomfortable with the collection and use of their personal data for HR analytics purposes. Organizations should be transparent about their HR analytics processes and provide employees with clear information on what data is being collected and how it will be used. Moreover, organizations should obtain explicit consent from employees before collecting and processing their data for HR analytics purposes.

HR analytics has become increasingly important in the current business scenario due to several reasons. However, it is crucial for organizations to address the ethical concerns related to the use of employee data for HR analytics purposes. Organizations must ensure that they comply with data protection laws and regulations while collecting and analyzing employee-related data. Moreover, organizations should also be mindful of their employees' privacy when utilizing HR analytics tools to monitor the workforce. To prevent the misuse of HR analytics, organizations should ensure that their HR analytics tools and processes are transparent and accountable. Furthermore, organizations should and measure the impact of HR strategies, such as training and development programs, recruitment efforts, and employee engagement initiatives. This enables organizations to make informed decisions regarding their HR strategies, which in turn leads to improved organizational productivity.

In addition, HR analytics has become increasingly important in managing the workforce during the COVID-19 pandemic. Many organizations have utilized HR analytics to track and analyze employee engagement, productivity, and stress levels. Such insights enable organizations to take proactive measures to support

their employees during this difficult period. With remote work becoming the norm, HR analytics has helped organizations to monitor employee productivity, engagement, and well-being. It has also enabled organizations to make informed decisions regarding workforce planning and resource allocation during the pandemic.

However, the importance of HR analytics has also raised some concerns. One of the major concerns is the ethical use of employee data. Organizations must ensure that they comply with data protection laws and regulations while collecting and analyzing employee-related data. Moreover, organizations should also be mindful of their employees' privacy when utilizing HR analytics tools to monitor the workforce.

To address these concerns, organizations should develop policies for ethical data collection and usage. Organizations must ensure that the data collected is relevant, accurate, and collected with the consent of the employees. They must also ensure that the data is used ethically and in compliance with data protection laws and regulations.

Moreover, organizations must consider the potential bias that may arise in HR analytics. The algorithms used in HR analytics may reflect the biases of the individuals who develop and train them. This can lead to discriminatory practices in recruitment, compensation, and employee evaluations. To prevent this, organizations should strive to eliminate biases in HR analytics by regularly auditing and reviewing the algorithms used.

Finally, organizations must consider the skills and competencies of their HR professionals when implementing HR analytics. HR professionals must possess analytical skills and an understanding of data analysis to utilize HR analytics effectively. Organizations must invest in training and development

programs to build the necessary skills and competencies in their HR professionals.

2.5 HR ANALYTICS AND ETHICAL CONCERNS RELATED TO DATA USAGE

HR analytics has brought about revolutionary changes in the HR domain, especially in recruitment, performance management, and employee retention. It has made it easier for organizations to make informed decisions based on data and has improved their overall efficiency. However, like any other technological advancement, HR analytics also raises ethical concerns, including the potential misuse of data and its implications on privacy and discrimination. This essay critically discusses the ethical concerns of HR analytics and their misuse in the current business scenario, suggesting different academic ethical stances.

The potential misuse of data is a significant ethical concern in the realm of HR analytics. The field of HR analytics entails the gathering and examination of extensive employee data, encompassing personal details such as age, gender, and race, which may potentially lead to discriminatory practices against employees. As exemplified by Bertrand and Mullainathan's (2004) research, individuals with names that are perceived as ethnically distinct are comparatively less likely to receive an invitation for a job interview in contrast to those with names that are perceived as more culturally assimilated. The utilization of algorithms in the context of recruitment and promotion can potentially sustain biases and lead to discrimination against specific groups, including but not limited to women, minorities, and individuals with disabilities (Davenport & Harris, 2007).

Another ethical concern is the potential violation of employee privacy. HR analytics can lead to the collection of sensitive information about employees, such as their health data, financial information, and social media activity.

Organizations may misuse this information for their gain, leading to employee distrust and privacy concerns (Kavanagh et al., 2019). Employees' personal data can also be accessed by third-party vendors, leading to further data privacy breaches and security risks (Wagner et al., 2019).

The third ethical concern is the potential loss of jobs for human resources professionals. HR analytics has led to the development of new job roles, such as data analysts and data scientists, which can replace traditional HR roles. This shift can lead to the loss of jobs for HR professionals who are not equipped with analytical skills, leading to social and economic implications.

To address these ethical concerns, different academic ethical stances can be suggested. The first ethical stance is consequentialism, which evaluates the morality of an action based on its consequences. This ethical stance advocates for the use of HR analytics only when it results in positive outcomes for all stakeholders, including employees, employers, and society (Jones, 1991). Therefore, organizations should use HR analytics to eliminate biases and discrimination, ensure employee privacy, and provide fair employment opportunities.

The second ethical stance is deontological ethics, which evaluates the morality of an action based on whether it violates certain ethical principles or duties. This ethical stance advocates for the protection of employee privacy and the elimination of biases and discrimination, even if it may result in negative consequences for the organization (Kavanagh et al., 2019). Therefore, organizations should use HR analytics in a transparent and ethical manner, with clear policies and guidelines for data collection, analysis, and use.

The third ethical stance is virtue ethics, which evaluates the morality of an action based on whether it aligns with certain virtues or character traits. This ethical stance advocates for the development of HR analytics that aligns with the

virtues of fairness, empathy, and transparency. Therefore, organizations should prioritize the well-being and interests of their employees while using HR analytics and ensure that the data collected is not used for discriminatory purposes.

In conclusion, HR analytics has brought about revolutionary changes in the HR domain, enabling organizations to make informed decisions based on data. However, its potential misuse raises ethical concerns related to privacy, discrimination, and job losses. To address these ethical concerns, different academic ethical stances, including consequentialism, deontological ethics, and virtue ethics, can be suggested. Organizations should prioritize the well-being and interests.

2.6 IMPACT OF HR ANALYTICS ON TRIPLE BOTTOM LINE

The HR department can play its role in contributing towards sustainability and TBL initiatives and programs. This participation can be active because they have the means to mobilize and motivate the workforce. Essentially, the workforce could be oriented and trained about sustainability initiatives and the benefits for the organization. HR analytics could potentially contribute towards understanding of TBL for companies. There is a business case for TBL because companies have to be held accountable. They need to develop measures so that they can also include social and environmental impacts of their activities. Research finds that firms have placed importance to environmental sustainability for their long-term strategies. The reason is that shareholders are pressurizing them to address specific challenges such as climate change, pollution, and biodiversity. Legnick-Hall et al (2018) concludes that HR analytics could be useful for TBL because they provide data-based insights to evaluate performance trends and optimize their distribution networks. Moreover, they can minimize environmental impact caused by specific business activities.

Dawoud & Shehata (2021) finds that HR analytics could be used for promoting individual well-being and other positive employee outcomes in the workplace. They can be used to further social outcomes external to the organization. For instance, the organization can promote itself through employer of choice in the market (Dawoud & Shehata, 2021). Khan et al (2021) finds that HR analytics could provide data and insights about the causes of stress and dissatisfaction among employees. Firms could use the data to fund employee wellness programs. They could ensure work-life balance programs for the employees. All of the above measures could be part of the strategy to achieve social and environmental dimensions. The implications of the above researches are that HR analytics can contribute towards TBL in multiple ways. It could be used for managing the needs and requirements of the workforce so that they remain committed and satisfied with their jobs and the work environment. The source of stress, resentment, anxiety, and depression could be obtained through the effective use of HR analytics.

HR analytics has the potential for helping companies to train and orient employees towards TBL activities. Proper orientation and training can increase awareness about the importance of social and environmental dimensions. Research finds that companies can train their employees to understand environmental issues as a result of business activities (Varyash et al, 2020). A comprehensive strategy could be employed where employees are trained to conserve energy, water, and gas. Another study finds that employees can be oriented to reduce the carbon footprint (Rodriguez et al, 2018). For instance, they could be encouraged or given incentives to travel together or use bicycles for commuting to work. The implications are that HR analytics can be a powerful and robust tool that helps organizations to achieve TBL outcomes. The use of resources in the workplace can be done efficiently while products and services could be developed or modified that are environment friendly.

In essence, HR analytics could play a crucial role in enhancing TBL activities and outcomes in an organization (Rodriguez et al, 2018). It can provide comprehensive information so that employees are oriented towards TBL and help to accomplish the strategic goals of organizations. Developing awareness about TBL and sustainability is crucial because it helps employees to recognize the future direction of the organization. They will abide by rules and regulations while they can be given tasks or projects where they can demonstrate commitment towards sustainability (Varyash et al, 2020). This helps to create a culture of sustainability where organizations continuously seek to improve their social responsibility. Employees could even be potentially asked to participate in social and environment protection programs launched by the company to meet the needs of the stakeholders.

The relationship between HR analytics and organizational TBL has been studied in the context of the organization's environmental performance and long-term goals. Van den Heuvel & Bondarouk (2017) states that HR analytics helps to define talents and enhances potential of the workforce through realistic metrics. This helps to provide insights and supports decision making processes with regard to managing people in organizations. Zeidan & Itani (2020) finds that TBL and HR analytics can be integrated to enhance existing capabilities of organizations. The role of leadership is instrumental because they can define and promote sustainability at various levels of the organization. They can create dialogues with the stakeholders including employees to create value (Zeidan & Itani, 2020).

The implications are that HR analytics can boost HR strategy to support business directions under TBL intent. The human and organizational capital can be aligned effectively to support sustainability vision and business strategies. Furthermore, HR staffing plans through analytics can help organizations to remain competitive as they focus on all three dimensions of TBL. The conclusion is that HR analytics can be a viable tool for promoting sustainability initiatives in organizations. HR can plan and develop the need for talent in the future that will

support the sustainability initiatives. They can also develop realistic and practical strategies to achieve sound outcomes.

To achieve success, HR analytics must be part of the strategy to achieve strategic growth and sustainability. The type of data that is collected needs to be analyzed thoroughly by the management so that they can achieve strategic growth and change. Such an approach will help organizations to attain success in the environment.

An additional objective of utilizing HR analytics for Triple Bottom Line (TBL) could involve the incorporation of sustainability aims and goals within recruitment and selection procedures. The utilization of analytics has the potential to uncover valuable insights related to employees who share consistent values and outlooks with the organization. Ciambotti et al. (2021) assert that this facilitates the acquisition of personnel capable of contributing to the attainment of sustainability goals. The companies can also work on critical talent and jobs that are needed to support current sustainability objectives. Research finds that analytics can help build pool of knowledge and skills towards TBL framed strategy (Koinig & Weder, 2021). This can help to introduce new business opportunities for firms. The implications are that HR analytics can be used to create a corporate strategy with TBL. They can provide context and content for strategic development of intangible assets. Furthermore, HR planning processes could be used for implementing new directions in TBL through the use of analytics.

A strategic reorientation of firms would occur with HR analytics used to guide the organization towards its TBL objectives and outcomes (Ciambotti et al, 2021). They could be successful in changing and integrating the new processes and programs to achieve TBL objectives. It can be concluded that HR analytics augments the company's capabilities and helps to support decision making. Consequently, it can be used to identify priority areas in sustainability and

develop a proactive strategy for change and growth. The organization can develop effective strategies to overcome problems.

The triple bottom line measures an organization's social, environmental, and economical performance, and HR analytics can help to improve all three areas.

One way that HR analytics can impact the social bottom line is by improving employee satisfaction and well-being. By analyzing data on employee engagement, satisfaction, turnover, and other factors, organizations can identify areas for improvement and implement strategies to enhance employee well-being. This can lead to increased productivity, reduced absenteeism, and lower turnover rates, all of which can have a positive impact on the social bottom line.

HR analytics can also impact the environmental bottom line by promoting sustainable practices, such as reducing paper usage and energy consumption. By analyzing data on resource usage and waste generation, organizations can identify areas for improvement and implement strategies to reduce their environmental impact. This can include initiatives to promote recycling, reduce emissions, and conserve energy, all of which can have a positive impact on the environmental bottom line.

Finally, HR analytics can impact the economical bottom line by improving organizational performance. By analyzing data on employee performance, talent acquisition, and development, organizations can identify areas for improvement and implement strategies to enhance productivity and profitability. This can include initiatives to improve training and development programs, recruit top talent, and promote a culture of innovation, all of which can have a positive impact on the economical bottom line.

Overall, HR analytics can have a significant impact on the triple bottom line, and organizations that embrace data-driven decision-making in their HR practices are likely to see benefits across all three areas.

2.7 THEORITICAL FRAMEWORK

The concept of sustainability is frequently illustrated through the utilization of the triple bottom line framework, which encompasses economic prosperity, social well-being, and environmental preservation. The Triple Bottom Line (TBL) framework endeavors to expand the scope of assessment beyond exclusively financial metrics to encompass social and environmental metrics as well, with the ultimate goal of establishing a more sustainable model of capitalism. The approach is highly holistic in nature as it takes into account all three dimensions simultaneously, rather than treating them as distinct entities. The objective is to establish a form of capitalism that is more sustainable in nature, which caters to the requirements of current generations while ensuring that the capacity of future generations to fulfill their own needs is not compromised.

The concept behind TBL is that businesses need to consider all three bottom lines when making decisions to be truly sustainable. While this is a relatively new concept, it is gaining in popularity as more and more businesses begin to realize the importance of sustainability. There are many ways to measure the triple bottom line. The most common approach is to use environmental, social, and economic indicators. However, there is no one-size-fits-all solution and businesses will need to tailor their approach to fit their specific circumstances.

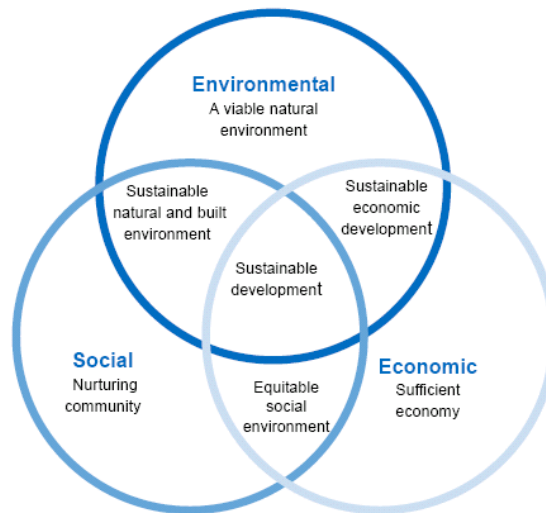


Figure 1: Triple Bottom Line Conceptualization (Svensson et al., 2018)

One of the challenges with implementing a TBL approach is that it can be difficult to find data on social and environmental indicators. This is particularly true for small businesses that may not have the resources or expertise to track this type of data. Another challenge is that TBL can be viewed as something of a moving target, as what constitutes a "sustainable" business practice can change over time. Despite these challenges, the triple bottom line is a valuable framework for thinking about sustainability and organizations that are serious about creating a more sustainable future should consider implementing it.

To help address this challenge, academics need to continue to produce high-quality research on HR analytics that is grounded in theory and that can be used by practitioners to improve their understanding of how to use HR analytics effectively. In addition, academics need to continue to engage with practitioners to ensure that their research is relevant and useful to those who are using HR analytics in the workplace. Only by continuing to do this will we be able to move closer to a common understanding of what HR analytics is and how it can be used effectively to improve organizational performance.

2.8 CONCEPTUAL FRAMEWORK

Interrelationships among the research model's ideas show the model's origins in addressing a specific knowledge gap or challenge. The current conceptual model given in this research evolved from a long chain of drivers specific to this case study. In the first place, HR analytics were selected for investigation because there is so little written on Human Resource Analytics in general, and even less empirical studies that focus on the topic's applicability in developing nations (Zeidan & Etani, 2020). Additionally, there is a dearth of research concentrating on government agencies in the Gulf region and none in the Kingdom of Bahrain. The current study from a theoretical conceptualization focusses on HR analytics and factors of Triple Bottom line separately as well as TBL as stand-alone concept (Rodriguez et al, 2018). The conceptual framework is presented below with dependent and independent variables.

The TBL factors included in the framework are economic performance, social responsibility, and environmental sustainability. These factors are measured using various indicators, such as financial performance, employee well-being, and carbon emissions.

TBL as a stand-alone concept is also included in the framework, as it represents the overall approach of considering the triple bottom line in organizational decision-making. The conceptual framework demonstrates the interrelatedness of these elements and the potential for HR analytics to support the TBL approach by providing data on each of the TBL factors. The study aims to provide insights into how organizations can use HR analytics to better align their practices with the TBL framework, leading to improved economic, social, and environmental outcomes.

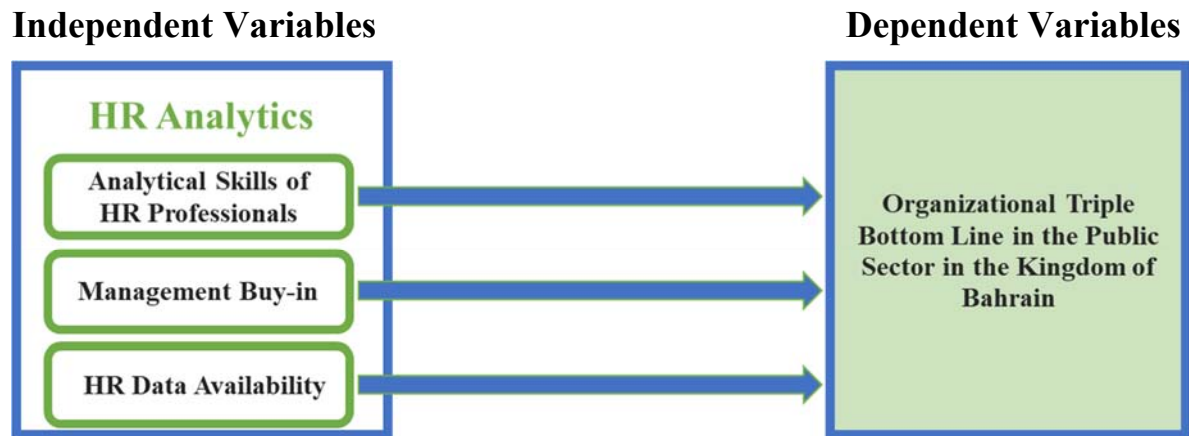


Figure 2: Conceptual Framework

2.9 RESEARCH HYPOTHESES

Below are the hypotheses constructed:

H1: There is a significant impact of HR analytics on the organizational triple bottom line in the public sector in Bahrain.

Three sub- research hypotheses are developed as follows:

H2: There is a significant impact of Analytical Skills of HR professionals on the organizational triple bottom line in the public sector in Bahrain.

H3: There is a significant impact of Management Buy-in on the organizational triple bottom line in the public sector in Bahrain.

H4: There is a significant impact of HR Data Availability on the organizational triple bottom line in the public sector in Bahrain.

2.10 RESEARCH GAPS

The majority of research on HR analytics tends to focus on adoption, neglecting the fundamental elements that are crucial when examining a relatively new concept such as HR analytics and its potential for demonstrating organizational value and impact (Srinath & Madhavaiah, 2018). Savitz and

Weber (2006) assert that the Triple Bottom Line construct has attracted increasing interest in modern times, owing to its exposure to sustainability and its close correlation with the same. Despite the acknowledged significance of the issue to enterprises, there has been limited advancement in both the relevant literature and practical implementation.

Furthermore, the impact of the concept extends globally by upholding the principles of sustainability through the observation of organizational practices (Hernik & Minguez, 2017). It is vital that both academics and practitioners recognise the need to invest in this innovation. This will prevent HR, from falling farther behind. They are beginning to realise the potential benefits of investing in data metrics and analytics in HR, and as a consequence, they are beginning to make these investments. However, before making these investments, companies must guarantee that they will offer favourable outcomes. According to Marler & Boudreau (2017) that there has been a notable increase in the number of companies who have started to use HR analytics, but not all of them have been able to make the most of it because they don't know how to properly use and interpret the data.

This is where academic research can make a valuable contribution. Academic institutions have been at the forefront of HR analytics, conducting extensive research on the topic and producing high-quality papers that can be used by practitioners to improve their understanding of how to use HR analytics effectively. One of the key challenges facing practitioners is the lack of a common language when it comes to HR analytics. This is because there is no standard definition for HR analytics, and as a result, different people often use the term to mean different things. This can make it difficult for practitioners to communicate with each other about HR analytics, and it can also make it difficult for them to understand the academic literature on the topic.

2.11 SUMMARY OF THE CHAPTER

The focus of the literature review has been on HR analytics dimensions, including the skills of HR professionals, management support, and HR data availability. A detailed discussion of the triple bottom line is also presented. The literature indicates that HR professionals need to have a deep understanding of data and analytics in order to be able to effectively use HR data to make decisions. In addition, they need to be able to communicate effectively with managers and other stakeholders about the data and its implications. Overall, there is a gap in the conceptualisation where triple bottom line is not well studied as a whole concept instead of its focused sub-variables.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The primary purpose of research philosophy is to facilitate the synthesis of knowledge. This can occur only when a proper philosophical approach is utilized. The chosen approach helps to shape the research design, data collection, and analysis methods. Philosophy helps to address the nature of truth and knowledge. It can help to understand diverse assumptions and provide a foundation for the research.

The choice of research philosophy is important because different assumptions might be present on the topic. The research philosophy can help to identify these assumptions and choose the best approach for the study. The philosophy can help to inform the researcher about the original reasons, opinions, and motivations. Insights into the problem can be obtained while it can be used as the basis for creating ideas for potential research (Crowther & Lancaster, 2012).

The first part of research philosophy is to identify, criticize, and explain inconsistencies and confusions. It involves a critical examination of the assumptions underlying the research. The aim is to evaluate and counter unsustainable assumptions. The absence of such an approach would create incorrect or inconsistent findings. It is important to acknowledge the assumptions made and the limitations of the study.

The next part of research philosophy is concerned with informing researchers about their position in the wider field of knowledge. It is crucial to become aware of the potentialities that can be explored in the given study. This involves a critical examination of the existing literature and the identification of gaps in knowledge. The research philosophy can help to guide the research in the right direction and ensure that the findings are relevant to the wider field of knowledge.

Finally, research philosophy helps to identify the researcher's positionality, biases, and values, which may impact the research process and results. By understanding their philosophical position, researchers can ensure that their research is transparent, rigorous, and credible. Moreover, research philosophy helps to establish the theoretical framework and conceptualization of the research questions or hypotheses. This can guide the selection of appropriate research methods and techniques to answer the research questions effectively. Overall, research philosophy plays a crucial role in ensuring the accuracy and validity of research findings.

Positivism is a research paradigm that prioritizes the application of empirical and objective techniques to produce knowledge. The concept underlying this proposition is that a singular, objective reality exists and can be quantified and perceived through observation. The objective of positivism is to understand the principles and universalizations that regulate human conduct. Positivism is a philosophical approach that emphasizes the use of quantitative methods for the purpose of gathering and analyzing data. The utilization of this approach is prevalent in research investigations that endeavor to examine hypotheses and produce knowledge that can be applied to a broader population.

Interpretivism is a theoretical framework for conducting research that places significant emphasis on the subjective experiences and meanings of individuals. The underlying premise of this concept is that individuals are responsible for constructing their own meanings and interpretations of the world in their immediate surroundings. Interpretivism seeks to comprehend the significance and connotation of human behavior. Interpretivism is a research paradigm that is predicated on the utilization of qualitative methodologies for the purpose of gathering and scrutinizing data. The utilization of this approach is prevalent in research endeavors that seek to comprehend intricate social phenomena.

Critical theory is a philosophical approach to research that prioritizes the significance of social justice and political transformation. The underlying premise of this perspective is that the construction of social reality is influenced by power dynamics and societal frameworks. Critical theory seeks to discern the fundamental societal frameworks and power dynamics that influence human conduct. The application of qualitative methodologies for data collection and analysis is a fundamental aspect of critical theory. Frequently employed in research endeavors that seek to contest established power dynamics and advance societal transformation.

Research is defined as the systematic work undertaken to increase the stock of knowledge. It seeks to use empirical methods to reaffirm prior research, add new insights, and help use the knowledge for the benefit of society. Research is about searching for knowledge and truth. It seeks to study problems by using a chosen strategy (Williams, 2007). The approach starts by developing hypotheses and choosing the appropriate methods and techniques. The data is processed, interpreted, and gives findings or solutions to the problem. The collection and analysis of information is undertaken to increase understanding about a topic or issue. A question is created, data is collected, and answers are given to the question (Williams, 2007).

It is also the studious inquiry or examination aimed at discovering and interpreting the facts. It can also involve revising the accepted theories or laws in the light of new facts. The process of research must be undertaken in such a way that it can help to achieve the goals of the study. With deep insights and knowledge, research contributes towards the progress and welfare of society (Williams, 2007). The answers obtained can be used for creating new applications and views. Essentially, research must be undertaken using the proper methodology.

Research philosophy is an essential aspect of any research study. It involves a set of assumptions and beliefs about the nature of knowledge and the best methods for acquiring knowledge. According to McNeill (2006), research philosophy encompasses a range of philosophical approaches that can be used to guide research studies. These approaches can include positivism, interpretivism, critical theory, and postmodernism. Each approach has its own set of assumptions and methods for generating knowledge.

3.2 PHILSOPHOCAL STANCES

Research philosophy is a huge topic that is affiliated with assumption, knowledge, and nature of the study. The strategies used to develop knowledge are discussed in the approach. Moreover, this is important since different assumptions might be present on the topic (McNeill, 2006). The synthesis of knowledge can occur only when a proper philosophical approach is utilized. Philosophy helps to address the nature of truth and knowledge. It can help to understand diverse assumptions. Research philosophy helps to understand the original reasons, opinions, and motivations. Insights into the problem can be obtained while it can be used as the basis for creating ideas for potential research (Crowther & Lancaster, 2012).

The first part of philosophy is to identify, criticize, and explain inconsistencies and confusions. It can be used to evaluate and counter unsustainable assumptions. The absence of such an approach would create incorrect or inconsistent findings. The next part of philosophy is concerned with informing researchers about their position in the wider field of knowledge. In other words, it becomes crucial to become aware of the potentialities that can be explored in the given study. Finally, philosophy is concerned with identifying the methods that can facilitate research. This approach is useful because data

collection and analysis will be dependent on the research methods (Crowther & Lancaster, 2012).

3.2.1 ONTOLOGY OF THE RESEARCH: OBJECTIVISM

The ontology of research refers to the researcher's belief about the nature of reality, which influences how they approach and conduct their research. In this case, the ontology of this research is objectivism. Objectivism asserts that there is a reality that exists independently of our minds, and that our knowledge of it is based on our understanding of its objective properties (Saunders et al., 2007). This means that the researcher's focus is on the objective reality of HR analytics and its impact on TBL in Bahrain.

Objectivism is a suitable approach for this study because it aims to explain and predict how something works, focusing on observable phenomena. In the context of HR analytics and TBL in Bahrain, objectivism allows for a focus on the measurable impact of HR analytics on TBL. Objectivism is a common approach in social research as it relies on statistical observations and analysis to make sense of the data, ensuring that the findings are based on concrete evidence. This approach is important in a study such as this, which seeks to understand the impact of HR analytics on TBL in Bahrain.

The researcher's role in objectivism is to observe and understand the objective reality of the situation, rather than imposing their own subjective experiences or opinions. The researcher's focus is on identifying and measuring the objective properties of HR analytics and its impact on TBL in Bahrain. By doing this, the researcher aims to provide an objective understanding of the phenomenon under investigation.

Objectivism can also be seen as a reductionist approach, as it aims to reduce complex phenomena to their objective properties. This approach is useful in studies where the focus is on identifying and measuring the impact of a particular phenomenon, such as HR analytics. However, it can also be limiting, as it may overlook the subjective experiences and perspectives of those involved

in the phenomenon under investigation. Therefore, while objectivism provides a useful framework for this study, it is important to acknowledge that it has limitations, and other ontological perspectives may be necessary to gain a more complete understanding of HR analytics and TBL in Bahrain.

3.2.2 EPISTEMOLOGY OF THE RESEARCH: POSITIVISM

Positivism is the selected research philosophy for the study. It uses objective way to understand the surrounding environment. The researcher is an objective person that does not use personal values to interfere in the research (McBurney, 2015). Furthermore, the individual will work in an independent manner. Positivism is dependent on quantifiable observations. Statistical analysis is used for deriving the final results. Moreover, positivism believes that knowledge flows from human experience. Each individual's experiences create findings and inferences that can be applied for research. The author McBurney (2015) adopts an atomistic and ontological perspective in which discrete and observable components are analyzed through observable and systematic methodologies. The utilization of positivism is deemed appropriate for this particular research endeavor, as it aims to scrutinize the influence of HR analytics on the triple bottom line within the public sector of Bahrain. Stated differently, the process necessitates the utilization of statistical observations and analysis in order to deduce its conclusions. Moreover, the philosophical doctrine of positivism is oriented towards the objectives of explanation and prediction.

The objective of the study is to make links between HR analytics and TBL. Positivism uses empirically observable phenomenon to make sense of the topic and derive valid findings. This will also be done in the study because human participants will provide insights about the topic.

3.3 RESEARCH APPROACH

The research approach is important because it involves plans and procedures for research. It identifies the steps needed for data collection, analysis, and interpretation. Essentially, the approach is useful for justifying the research methods and the focus of the study. The objectivity of the study can be detailed in the part (Walliman, 2010).

Furthermore, the validity of findings and interpretations of data can be undertaken properly when research approach is defined and documented by the researcher. An effective research approach takes into account the goals and objectives of the research. It is selected based on experience of research and audience of research study. It becomes important to select the best approach because it can be used for deriving valid and reliable inferences (Walliman, 2010). The failure to develop a proper research approach will result in inconsistencies and incorrect conclusions. This would disrupt the potential of the study to solve problems or reaffirm prior theories or provide new insights. The right research approach can inform action. It can contextualize the findings within the larger body of research.

3.3.1 DEDUCTIVE RESEARCH APPROACH

The choice of research approach is essential for the success of a study as it affects the validity and reliability of the findings. In research, two main approaches are used: deductive and inductive. The deductive research approach is a top-down approach, where a researcher starts with a theory and uses it to develop a hypothesis, which is then tested through empirical research. On the other hand, inductive research is a bottom-up approach, where a researcher starts with specific observations and uses them to develop a theory. Both deductive and inductive research approaches have their pros and cons. The deductive approach is useful because it allows for the development of specific hypotheses that can be

tested using empirical data. It is also useful for testing the validity of existing theories and for predicting outcomes in a specific context. Moreover, it is a quantitative research method, which allows for the measurement of variables and the use of statistical analysis.

One of the main advantages of the deductive approach is that it is efficient and cost-effective. Since the researcher starts with a theory, it is easier to identify the variables that need to be measured, and the data collection process can be more streamlined. Additionally, the deductive approach is more objective than the inductive approach, as the researcher is not influenced by preconceptions or biases. However, the deductive approach also has some disadvantages. One of the main drawbacks is that it can be limiting, as it relies on existing theories and may not allow for the exploration of new concepts or ideas. Additionally, it may not be suitable for studying complex phenomena, as it tends to oversimplify the relationships between variables.

Inductive research, on the other hand, is useful because it allows for the exploration of new concepts and ideas. It is also more flexible than deductive research, as it allows for the researcher to adapt to new information and ideas as they emerge. Furthermore, it is a qualitative research method, which allows for a more in-depth understanding of the research context and the experiences of the participants. However, inductive research also has some limitations. One of the main drawbacks is that it is more subjective than deductive research, as it relies on the interpretation of the researcher. Additionally, it can be time-consuming and expensive, as it involves collecting and analyzing large amounts of data.

Considering the nature of the current study, the deductive approach is more suitable than the inductive approach. This is because the study aims to test specific hypotheses related to the relationship between HR analytics and TBL in the Bahraini public sector. The deductive approach allows for the development of specific hypotheses based on existing theories, which can then be tested using

quantitative methods. Moreover, the deductive approach is more objective, which is important for ensuring the validity and reliability of the findings.

The deductive research approach studies what others have done and reads existing theories. The hypotheses are tested that emerge from the theories. The approach develops a hypothesis using existing theories. It designs a research strategy to test the hypothesis. Additionally, it starts from the particular and ends at the general (Hair et al, 2017). A test of relationship or link is done in general circumstances. The approach is also useful because it can explain through hypotheses. This is derived from the theory. Conclusions are deduced from propositions. An expected pattern is used to start deductive reasoning. It is tested against observations (Hair et al, 2017).

The deductive approach is useful for the study because it can explain casual relationships between HR analytics and TBL. It can study the links between both concepts and their application and role in the Bahraini public sector. Another reason for the validity of the approach is that it can measure concepts quantitatively. This is accordance with the goals of the study which would be measured using quantitative methods. Finally, it would be possible to generalize research findings to a certain extent. This would also be beneficial for Bahrain's public sector because they can increase viability and efficiency of TBL through the use of HR analytics.

3.4 RESEARCH METHODOLOGY

Research is a crucial aspect of any academic field or industry that aims to understand the underlying concepts and relationships between various variables. However, the methodology used in research can vary depending on the type of research, the research question, and the data collection and analysis techniques employed. Quantitative research and qualitative research are the two main types

of research methodologies used in various academic fields, including social sciences, engineering, and business. This section will discuss quantitative research in detail and compare it to qualitative research.

Quantitative research is a research strategy that focuses on quantifying data to evaluate and interpret relationships between variables. It emphasizes the use of statistical and numerical data to support research findings, and researchers employ specific methods and techniques to collect and analyze data. According to Pickard (2013), quantitative research aims to test theories empirically by collecting and analyzing numerical data. This approach involves an objective investigation of observable phenomena, which can be measured and analyzed mathematically. One of the main advantages of quantitative research is that it is based on empirical evidence, which ensures that the results are reliable and valid. Quantitative data can be analyzed using statistical techniques, which can provide objective and unbiased findings that can be interpreted and evaluated by other researchers. Additionally, quantitative research can be used to generalize the findings to a larger population, making it more representative of the research population (Bougie & Sekaran, 2019). This approach also allows researchers to develop models, theories, and hypotheses based on the data collected, which can be used to test and validate the results. However, one of the main disadvantages of quantitative research is that it may not provide in-depth insights into the research question. The emphasis on numerical data may overlook the subjective experiences, attitudes, and opinions of individuals, which may be critical to understanding the research problem fully. Additionally, quantitative research may not capture the complexity of social phenomena, such as cultural practices, social norms, and political ideologies (Bougie & Sekaran, 2019).

Qualitative research, on the other hand, focuses on identifying the reasons, assumptions, and opinions about a topic or study. It uses non-numerical data for its findings, such as interviews, focus groups, and observations, to understand the subjective experiences and perceptions of individuals. The main advantage of

qualitative research is that it provides rich, in-depth insights into the research question, which can be used to develop a more nuanced understanding of the phenomena under investigation. Additionally, qualitative research can capture the complexity of social phenomena and can provide a deeper understanding of cultural practices, social norms, and political ideologies (Bougie & Sekaran, 2019). However, one of the main disadvantages of qualitative research is that it may not be generalizable to a larger population. The findings may be specific to the research population, making it difficult to apply the results to other contexts or situations. Additionally, qualitative research can be subjective, as it relies on the interpretations and perceptions of the researcher and the participants. This subjectivity may lead to bias or inaccurate results (Bougie & Sekaran, 2019).

In the current study, quantitative research is more suitable because it aims to establish the links between HR analytics and the TBL in the Bahraini public sector. The use of statistical data provided reliable and valid results that can be used to generalize the findings to the larger population. Additionally, the emphasis on testing the theories empirically ensured that the results are objective and unbiased. This approach also allowed the researchers to develop models, theories, and hypotheses based on the data collected, which was used to test and validate the results.

To summarize, quantitative research is a research methodology that aims to measure and quantify data. In other words, statistical and numerical data is collected and interpreted through the process. An emphasis is made on testing the theory (Pickard, 2013). It is related to objective empirical investigation of observable phenomenon. The aim is to evaluate and interpret relationships between variables. Quantifying methods and techniques are used to support a research strategy. Quantitative data is found in numerical form. Statistics, percentages, and others can be incorporated as part of the study. Researcher will study the data through statistical analysis. The aim is to yield an unbiased result that can be used for interpretation and evaluation (Bougie & Sekaran, 2019). The

findings can be generalized for a large population. The other type of research methodology is qualitative that is concerned with identifying the reasons, assumptions, and opinions about topic or study. It uses non-numerical data for its findings (Bougie & Sekaran, 2019). Quantitative research was selected because statistical data was used to understand links between HR analytics and triple bottom line. The use of statistical data justifies the use of quantitative research. Quantitative approach is also useful for the study because it generates models, theories, and hypotheses. It develops instruments and methods for measurement. It can control and manipulate the variables while empirical data can be collected. Finally, the modelling and analysis of data can be undertaken efficiently (Bougie & Sekaran, 2019).

3.5 DATA COLLECTION METHOD

A survey questionnaire was selected as the data collection method. Questionnaire is an instrument that collects data. It involves asking subjects about topic through set of oral or written questions. The method has a number of advantages that makes it suitable for the study. firstly, it helps in collecting and analyzing data efficiently and quickly. Researcher can target large number of respondents effectively (Marvasti, 2018). This made the process of data analysis easy and efficient. It is a practical method for gathering data. Targeted groups can be selected for survey questionnaire. Picking and choosing questions becomes easy while the format can be easily designed. Vast amounts of data could be collected on the subject. There is scalability as information from large population can be collected. This helped in the research process. Analysis and visualization helped to reveal insights about data which is useful for answering the research questions (Marvasti, 2018). The disadvantages of questionnaire survey are that respondents might not understand the questions, or they might give incorrect answers. They cannot provide deeper meanings and insights about the topic. Some respondents might be reluctant or unwilling to answer the question

(Marvasti, 2018). Nevertheless, the method is useful for meeting the objectives of the study. It was used to answer the questions efficiently and effectively. It provided valid and reliable inferences.

3.6 QUESTIONNAIRE DEVELOPMENT

The construct of the questionnaire is mainly divided into dependent and independent variables. The first section below represents three main independent variables along with the sub-dimensions and question statements with specific references.

Dimensions	Subdimensions	Questions	References
HR Analytics	Data quality	“We have reliable human resources data.”	(Minbaeva, 2017)
		“The human resources data that we have available is structured/ organized. ”	(Minbaeva, 2017)
		“We have many incorrect entries in our human resources data. ”	(Minbaeva, 2017)
		“Our human resources data is easy to integrate (e.g., because it is stored in different places). ”	(Minbaeva, 2017)
		“We have a large amount of human resources data. ”	(Minbaeva, 2017)
	Data quantity	“We have human resources data that has been collected over several year. ”	(Minbaeva, 2017)
		“We have implemented a human resources information system (HRIS) that we use to	(Minbaeva, 2017)

		collect, store, and manage human resources data. ”	
	Processes	“We have standardized key metrics embedded in our reporting. ”	(Minbaeva, 2017)
		“We are able to blend internal corporate data with data from external sources (e.g., public information, market growth, and trends). ”	(Minbaeva, 2017)
		“We have processes in place to ensure the quality of our data (e.g., training and handbook/guidelines for data entry). ”	(Minbaeva, 2017)
		“We collect human resources data on a regular basis. ”	(Minbaeva, 2017)
		“We organize all of our human resources data at the individual level. ”	(Minbaeva, 2017)
	Data organization	“We organize all of our human resources data at the individual level (e.g., very detailed data on each and every employee) rather than department level. ”	(Minbaeva, 2017)
		“We regularly use our human resources data for operational reporting to our management.”	(Minbaeva, 2017)
Analytical Skills:	Skills of the HR team	“I have the analytical skills needed to run statistical	(Minbaeva, 2017)

		models (e.g., regression analysis).”	
		“We only use Microsoft Excel to analyze our human resources data.”	(Minbaeva, 2017)
		“I have all of the analytical skills needed to satisfy business demands for human resources analytics.”	(Minbaeva, 2017)
		“I can easily “tell a story” from our results.”	(Minbaeva, 2017)
		“I am capable of communicating our results in a way that makes them comprehensible for business purposes. ”	(Minbaeva, 2017)
		“I am capable of using different statistical software packages (e.g., SPSS, SAS, R, or Stata). ”	(Minbaeva, 2017)
		“I am able to derive analytical models that can help us answer business questions.	(Minbaeva, 2017)
		“I have the skills needed to produce standardized key metrics. ”	(Minbaeva, 2017)
		“I am good at visualizing our results for communication purposes. ”	(Minbaeva, 2017)
		“I can easily move from standardized key metrics to analytical. ”	(Minbaeva, 2017)

		“If I need analytical skills, I know who to contact in my organization (beyond my HR team). ”	(Minbaeva, 2017)
	Boundary-spanning role	“I attend conventions, courses, and seminars in order to stay up to date on current trends. ”	(Minbaeva, 2017)
		“I integrate academic research and external statistics into our work. ”	(Minbaeva, 2017)
		“HR business partners are “consumers of analytics” (e.g., they generate hypotheses, evaluate results, and develop recommendations). ”	(Minbaeva, 2017)
	HR business partners and performance implications	“I can document the impact of human resources on business performance. ”	(Minbaeva, 2017)
		“HR business partners are able to easily draw managerial implications from the results of analytics projects. ”	(Minbaeva, 2017)
Management Buy-in:	Top management attention	“We have the attention of top management. ”	(Minbaeva, 2017)
		“The insights that we produce from our data are taken seriously by top management. ”	(Minbaeva, 2017)
		“We regularly communicate insights gained from human	(Minbaeva, 2017)

		resources analytics projects to top management. ”	
		“We have top management’s support for human resources analytics projects. ”	(Minbaeva, 2017)
	Resource investments	“Our company makes human resources analytics a priority by investing in them. ”	(Minbaeva, 2017)
		“We are aware of the key business challenges that our business will face in the next few years. ”	(Minbaeva, 2017)
	Knowledge of strategic intent	“We proactively search for interesting new questions that can be investigated through the use of human resources analytics. ”	(Minbaeva, 2017)
		“The data-driven insights that we provide are used by our organization’s stakeholders. ”	(Minbaeva, 2017)
	Results are in use	“Organizational politics do not prevent the implementation of the evidence-based decisions that we suggest.”	(Minbaeva, 2017)
		“We inspire relevant organizational stakeholders (e.g., line managers and HR business partners) to take action on the basis of our findings. ”	(Minbaeva, 2017)

		“We have success stories in which our human resources analytics projects have been used for action. ”	(Minbaeva, 2017)
		“We justify the need for analytics through the use of analytics. ”	(Minbaeva, 2017)

Below is the second section of the construct, presenting dependent variables along with the sub-dimensions and question statements with specific references:

Dimensions	Subdimensions	Questions	References
Triple Bottom Line	Social Dimension of SR	“We are aware of the employee’s quality of life. ”	(Gallardo-Vázquez et al., 2011)
		“Employees compensation is related to their competences and their results. ”	(Gallardo-Vázquez et al., 2011)
		“We are committed to job creation (fellowships, creation of job opportunities in the firm...) ”	(Gallardo-Vázquez et al., 2011)
		“We foster training and development of our employees. ”	(Gallardo-Vázquez et al., 2011)

		“We have human resources policies to facilitate conciliation between professional and personal life. ”	(Gallardo-Vázquez et al., 2011)
		“We are aware to employees’ initiatives related to management decisions. ”	(Gallardo-Vázquez et al., 2011)
		“Equal opportunities exists for all employees. ”	(Gallardo-Vázquez et al., 2011)
		“We have dynamic mechanisms of dialog with employees. ”	(Gallardo-Vázquez et al., 2011)
	Economic Dimension of SR	“We are worried about offering high quality products and/or services to the customers . ”	(Gallardo-Vázquez et al., 2011)
		“Our products and/or services satisfy national and international quality standards. ”	(Gallardo-Vázquez et al., 2011)
		“We are characterized to have the best relation price to quality. ”	(Gallardo-Vázquez et al., 2011)
		“We offer to our customers accurate information about our	(Gallardo-Vázquez et al., 2011)

		product and/or services.”	
		“The respect to consumer rights is a proprietary axis in our firm. ”	(Gallardo-Vázquez et al., 2011)
	Environmental Dimension of SR	“We are able to minimize our environmental impact. ”	(Gallardo-Vázquez et al., 2011)
		“We use goods in process and/or goods processed with low environmental impact. ”	(Gallardo-Vázquez et al., 2011)
		“We contemplate energy savings in order to get high levels of efficiency. ”	(Gallardo-Vázquez et al., 2011)
		“We attached very high value to the introduction of alternative sources of energy. ”	(Gallardo-Vázquez et al., 2011)
		“We are aware of the relevance of planning investments to reduce the environmental impact.	(Gallardo-Vázquez et al., 2011)
		“We are in favour of gas emission reductions and waste products recycling.”	(Gallardo-Vázquez et al., 2011)

		“We have a positive predisposition to use, to buy or to product ecological goods. ”	(Gallardo-Vázquez et al., 2011)
		“We appreciate using recyclable packing.”	(Gallardo-Vázquez et al., 2011)

3.7 DATA ANALYSIS

The process of scrutinizing, purifying, converting, and constructing models from data with the objective of detecting crucial information is referred to as data analysis. It is utilized for drawing inferences. The identification and documentation of insights derived from topics can facilitate decision-making processes. It consists of various techniques that are used for scientific decision making (Dzwigol, 2019). Data analysis is vital for research because it consists of the need for developing effective and efficient conclusions. It analyzes and provides meaning to the data that is collected. Consequently, selecting the best and appropriate data analysis techniques and methods will help to achieve success. Data analysis is a crucial step in any research project. It enables the researcher to extract meaningful information from the collected data, which can then be used to make informed decisions or draw conclusions. There are various types of data analysis techniques, including descriptive statistics, inferential statistics, and qualitative analysis. Each technique has its pros and cons, and the researcher needs to choose the most suitable method depending on the nature of their research project.

Descriptive statistics serve the purpose of concisely summarizing extensive data sets. The methodology employed in this analysis entails the utilization of summary statistics such as the mean, median, and mode to represent the attributes of the dataset. Descriptive statistics served the purpose of detecting patterns and

trends within a dataset, while also offering a concise summary of the data. Descriptive statistics, while useful in summarizing and describing data, did not provide the means for hypothesis testing or the extrapolation of findings to a broader population. Hence, their optimal application is in the context of exploratory research, wherein the primary objective is to acquire initial awareness of the data.

Inferential statistics, on the other hand, was useful for hypothesis testing and the generalization of results to a larger population. This analytical approach required the utilization of statistical methods to draw conclusions about a larger group, or population, by examining a smaller subset, or sample. The application of inferential statistics is valuable in hypothesis testing and the determination of statistical significance of obtained results. It was crucial to guarantee that the sample is representative of the population to prevent any potential bias in the outcomes. The application of inferential statistics was most appropriate in confirmatory research, which is characterized by the objective of testing a particular hypothesis.

Qualitative analysis involves the interpretation of non-numerical data such as interviews and observations. This type of analysis was useful for gaining insight into complex phenomena and understanding the experiences and perceptions of individuals. Qualitative analysis was useful for exploring new topics or generating new theories. However, it can be time-consuming and requires the researcher to have strong analytical skills.

In the current research project, the use of SPSS was more suitable for data analysis. SPSS is a software package that allows for the manipulation and analysis of quantitative data. It offers a range of statistical tests and analysis tools that are useful for hypothesis testing, model building, and data visualization. SPSS is particularly useful for analyzing large datasets, as it can handle and process large amounts of data efficiently. Additionally, SPSS has a user-friendly interface and offers a range of resources for learning and troubleshooting. Therefore, the use of

SPSS in the current research project allowed for the efficient analysis of data and the generation of reliable and valid results.

3.7.1 DESCRIPTIVE ANALYSIS

The first type of data analysis that was undertaken in the study is descriptive analysis. This refers to data analysis where data points are defined and shown. They were also summarized for the research (Dzwigol, 2019). All of the above was performed to identify emerging patterns that will complete condition of the data. It was an important step for statistical data analysis. The importance of descriptive statistics had been identified. Raw data that is presented can be hard to comprehend and visualize (Dzwigol, 2019). Consequently, descriptive data analysis helped to present data in meaningful way. This helped to facilitate process of interpretation of data. It is also the first and basic type of analysis that can be used for the benefit of the study. It collected and analyzed the data based on the goals and objectives of the study.

3.7.2 CRONBACH APLHA

Cronbach's alpha is a widely employed metric for evaluating internal consistency reliability in research. It evaluates the degree to which the items in a given test or questionnaire are indicative of the same underlying construct or concept. The scale of measurement varies from 0 to 1, whereby higher values are indicative of increased internal consistency. Cronbach's alpha is a commonly employed tool by researchers to assess the reliability of their measures, and it plays a crucial role in guaranteeing the precision and authenticity of research outcomes.

By calculating the Cronbach's alpha coefficient, researchers determined whether the items in the questionnaire measured the same construct in a consistent manner. This helped to ensure that the data collected is reliable and

trustworthy. Additionally, Cronbach's alpha can be used to identify problematic items, which can be removed from the analysis to improve the overall reliability of the test. It is an important part of data analysis which can help to answer the questions in a valid way (Dzwigol, 2019).

Overall, Cronbach's alpha is an important tool for data analysis, and it can help to ensure that research findings are accurate and valid.

3.7.3 REGRESSION ANALYSIS

The study analyzed the data in two main sections: demographic and hypothesis testing. The hypothesis testing was carried out through regression analysis to determine the impact of HR analytics on the TBL framework. Pearson correlation was also performed to investigate the correlation between HR analytics and TBL. This analysis aimed to provide insights into how organizations can use HR analytics to improve their alignment with TBL, leading to enhanced economic, social, and environmental outcomes. The current study conducted regression analysis and Pearson correlation to examine the relationship between HR analytics and the TBL framework.

Regression analysis is a statistical technique employed to examine the association between a dependent variable and one or more independent variables. The TBL framework serves as the dependent variable in this study and is assessed through the economic performance, social responsibility, and environmental sustainability factors.

The independent variable is HR analytics, which is measured using data on HR practices and decisions. The regression analysis was used to measure the impact of HR analytics on the TBL framework, considering the potential influence of other variables.

Pearson correlation is a statistical method used to measure the strength and direction of the relationship between two continuous variables. In this study, Pearson correlation was used to examine the correlation between HR analytics

and the TBL framework. This allowed the researchers to determine whether there was a significant association between the two variables, and the direction and strength of this association.

The study's hypothesis testing was aimed at exploring whether HR analytics had a positive impact on the TBL framework. The regression analysis helped to quantify the relationship between these two variables, while the Pearson correlation analysis helped to determine the nature and strength of the relationship. Overall, the use of regression analysis and Pearson correlation allowed the researchers to better understand the relationship between HR analytics and the TBL framework. By examining this relationship, the study aimed to provide insights into how organizations can use HR analytics to better align their practices with the TBL framework, leading to improved economic, social, and environmental outcomes.

Regression analysis is part of the data analysis activity. It is important because it allows to make sense of the data so that important conclusions can be derived. It is also a reliable method that allows to determine which factors matter or not. It can identify which factors need to be ignored. Moreover, it also studies the ways that the factors can influence each other (Dzwigol, 2019).

3.8 RESEARCH POPULATION

Approximately all HR employees in the public sector in the Kingdom of Bahrain represent the population of the present research. Sectors targeted are as follow: Tourism, Healthcare, Finance, Telecommunications, Education, Utilities. Population size being around 2600 employees in the Public Administrative role in the government sector. The research instrument (questionnaire) was circulated to HR managers, HR professionals, HR specialists. The study excluded non-HR employees from the analysis.

3.9 RESEARCH SAMPLE

The sample size of the present research is planned to be 335. The sample was drawn from the population of HR employees in the public sector in Bahrain. A simple random sampling technique was used to select the participants for the study. All public sector HR employees in Bahrain who agree to participate in the study were included in the sample. The calculation of the sample is as follows:

A total of $N=335$ participants will be included in the study. The population size is 2600, so the following equation will be used to calculate the required sample size:

The sample size calculation formula for a population of 2600 employees with a 95% confidence level and 5% margin of error is:

$$n = (Z^2 * p * q) / E^2$$

The variable "n" represents the size of the sample. The variable Z represents the Z-value associated with a given confidence level, which is 1.96 for a confidence level of 95%. Let p denote the estimated proportion of the population that exhibits the characteristic of interest $q = 1 - p$. The variable E represents the margin of error expressed as a proportion, specifically 0.05.

Assuming that there is no prior estimate of the proportion of the population with the characteristic of interest, a conservative estimate of 0.5 (50%) can be used for p.

Plugging in the values into the formula:

$$n = (1.96^2 * 0.5 * 0.5) / 0.05^2 \quad n = 335.16$$

Rounding up to the nearest whole number, the recommended sample size is 335.

Therefore, $N = 335$ participants will be included in the study.

3.10 SUMMARY OF THE CHAPTER

The present study investigated HR analytics and its impact on TBL in Bahrain. A questionnaire was administered to a sample of 335 participants. The data from the questionnaire was analyzed using SPSS software, and the findings were reported in the research report. Objectivism was adopted as ontology of the and positivism was adopted as epistemology of the philosophical stance of the current research. This philosophical stance is important because it helped the researcher to understand the impact of HR analytics, analytical skills, management buy in and HR data on TBL. The questionnaire used sub-dimensions which were attained from previous research and the quantitative data analysis was used to answer the research questions.

CHAPTER FOUR: FINDINGS AND ANALYSIS

The analysis chapter serves as the core of any research study, providing a detailed account of the data gathered and the methods used to analyze it. This chapter typically delves into the descriptive and hypothesis testing analyses conducted to examine the research questions. The descriptive analysis presents key characteristics of the data, such as measures of central tendency and variability, providing an overview of the data. The hypothesis testing enables researchers to test the validity of their research hypotheses, determining the strength of the relationship between variables and whether the results are statistically significant. The chapter discusses the methods used to conduct each analysis and the overall findings, providing a comprehensive account of the insights gained from the data.

4.1 VALIDITY AND RELIABILITY

Cronbach's Alpha is used to measure the questionnaire reliability which is (0.7) and this means that the questionnaire is reliable. Validity is measured by using face validity which means that the items in the questionnaire are clear and easy to understand.

Face Validity is used when the researcher wants to ensure that the items in the questionnaire are measuring what they are supposed to measure. This means that the items should be clear and easy to understand. Cronbach's Alpha is used when the researcher wants to ensure that the questionnaire is reliable. This coefficient can range from 0 to 1, with a value of 0 indicating that the questionnaire is not reliable, and a value of 1 indicating that the questionnaire is perfectly reliable. In general, a Cronbach's Alpha coefficient of 0.7 or above is acceptable.

4.2 RESPONSE RATE

The calculation of response rates involves the division of the total number of eligible individuals in the sample by the quantity of usable responses that have been received. According to Mitchell and Carson's (1990) argument, which is validated by other studies, the appropriate method for calculating the survey response rate involves dividing the number of questionnaires returned by the total number of individuals who were initially provided with the survey. The denominator is computed by deducting the count of questionnaires that were not delivered from the original sample. Mitchell and Carson (1990) asserted that this calculation merely evaluates the effectiveness of the questionnaire in motivating participants to complete the survey, while masking the instrument's significant sample selection bias.

A total of 600 individuals were selected to participate in the survey, and 411 responses were collected, surpassing the minimum sample size requirement. The study exhibits a favorable attribute in terms of its sample size, as a larger sample size can enhance the statistical power and generalizability of the results.

With the response size of 411 and assuming a 95% confidence level, the margin of error would be approximately 4.82%, which is well within the acceptable range. This suggests that the survey results are reliable and can be used to draw conclusions about the population of interest (i.e., public sector employees in Bahrain).

4.3 DEMOGRAPHIC DATA ANALYSIS

Age, Gender, Education level, Job level, Sector, and Years of experience in the HR field were subjected to frequency and percentage calculations.

4.3.1 GENDER COMPOSITION:

The gender composition among respondents was 41.12% male and 58.88% female (see Figure 3). The most frequently observed category of Gender was Female ($n = 242$, 58.88%). It is evident that most of the HR employees in the public sector of Bahrain are mostly female.

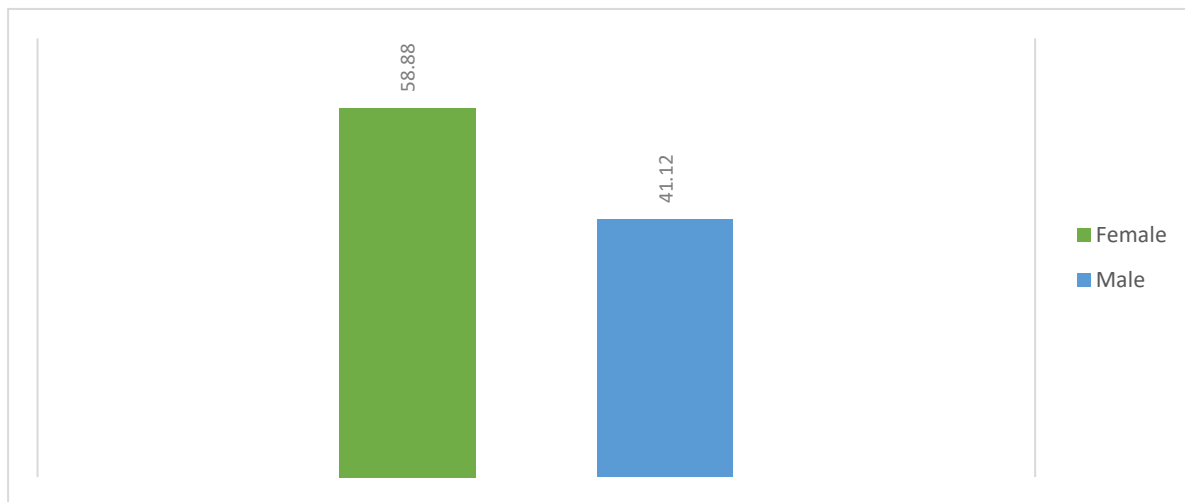


Figure 3 Gender Composition

4.3.2 AGE DISTRIBUTION:

Figure 4 illustrates the age distribution of the respondents who completed the questionnaire in the study. Only HR employees above the age of twenty were included in the sample. The most frequently observed category of Age was 20-29 ($n = 177$, 43.07%). It is evident that the HR function in the public sector of Bahrain are operated mostly by the youth, as the majority of the respondents are below 40 years.

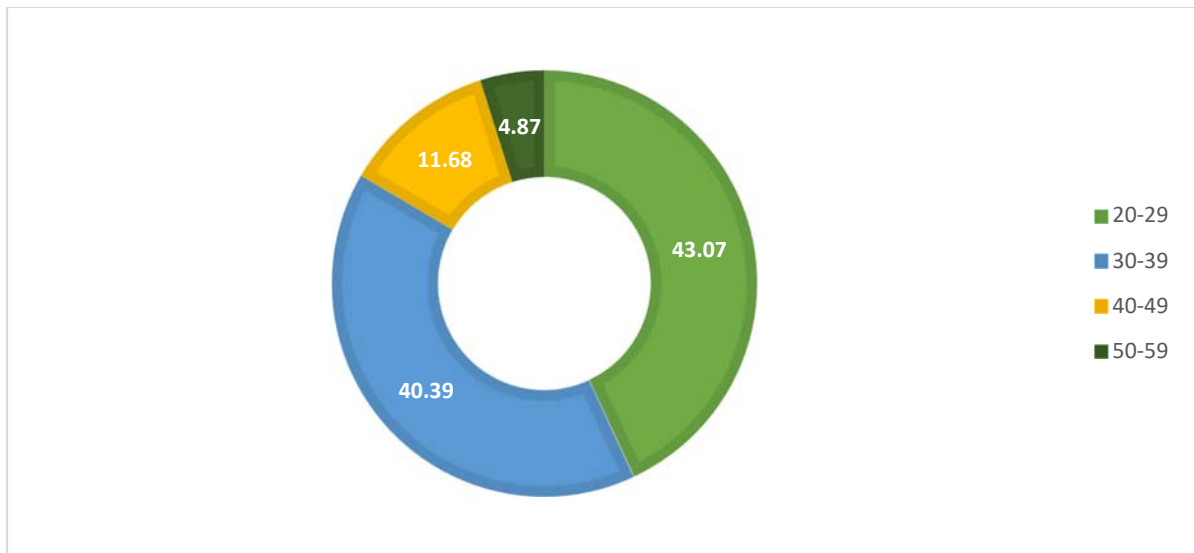


Figure 4 Age Distribution

4.3.3 HR EXPERIENCE STATISTICS:

The most frequently observed category of Years of experience in HR field only 8 years and above (n = 169, 41.12%) as shown in Figure 5. Analysis in this section is intended to categorize the respondents based on their years of experience in the HR field only.

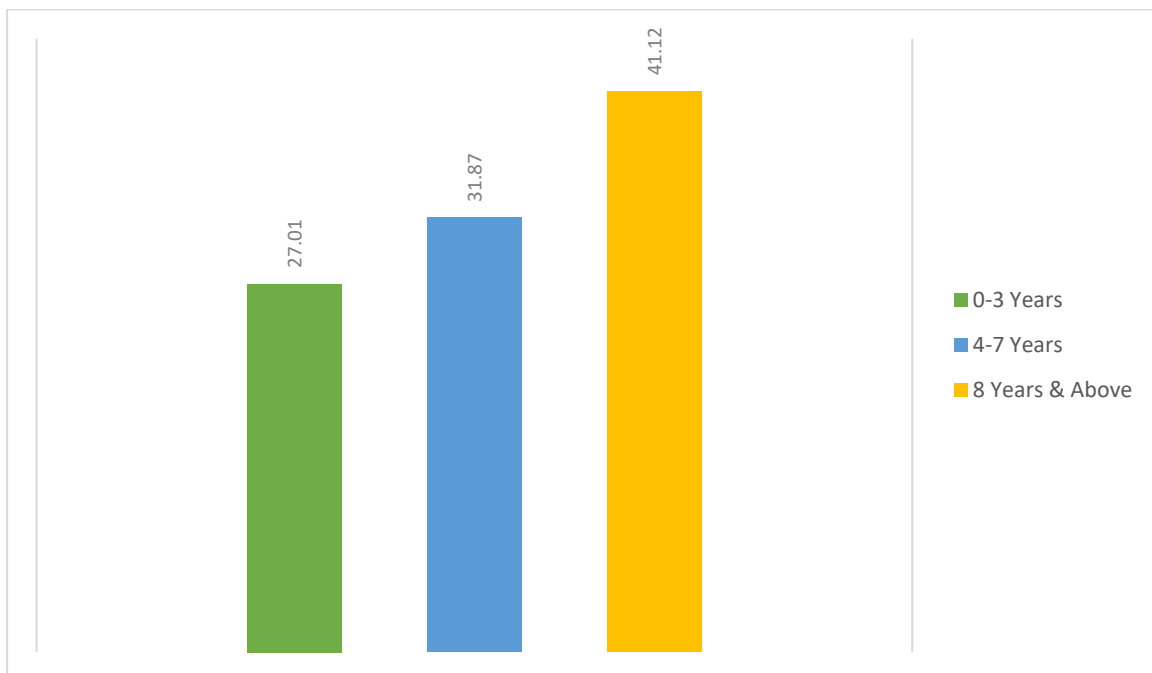


Figure 5 HR Experience Statistics

4.3.4 JOB LEVEL STATISTICS:

This section's analysis is meant to categorize respondents based on their HR job level. The most frequently observed category of Job level was Senior level (n = 170, 41.36%) as illustrated in Figure 4.

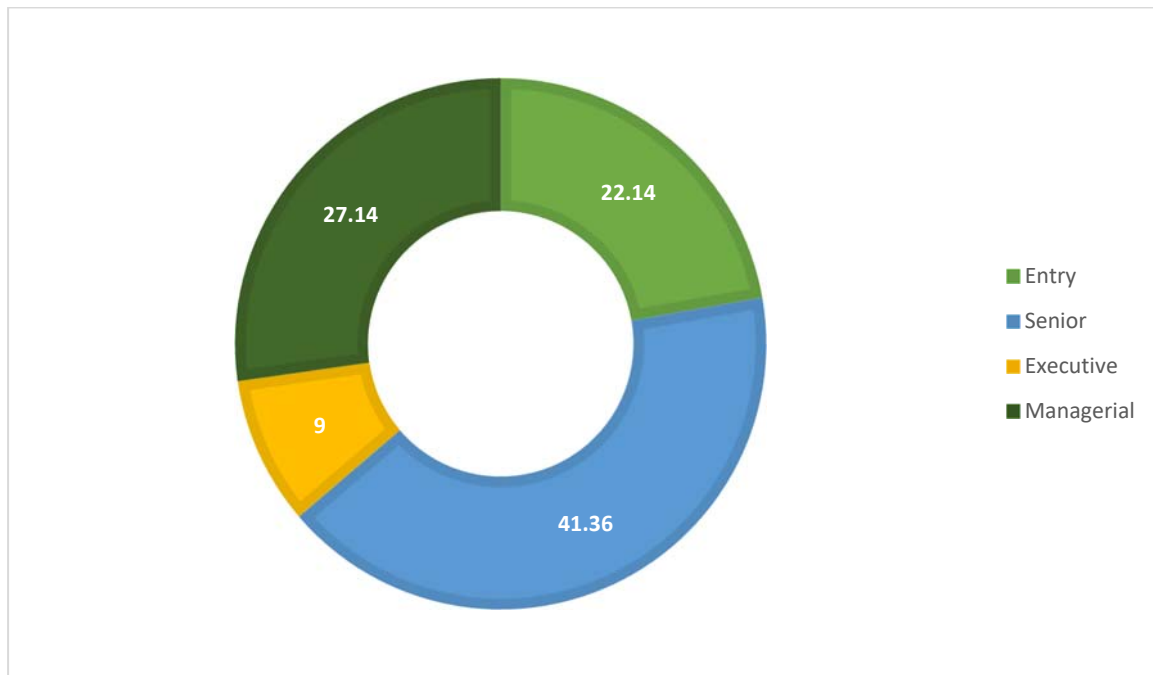


Figure 6 Job Level Statistics

4.3.5 EDUCATION LEVEL STATISTICS

In terms of respondents' educational backgrounds, Figure 7 shows that 56.69% had completed their BSc. degree and 38.44% had some sort of higher education. Only a small percentage of respondents had only completed Associate Diploma (4.87%). Thus, the most frequently observed category of Education Level was BSc. (n = 233, 56.69%).

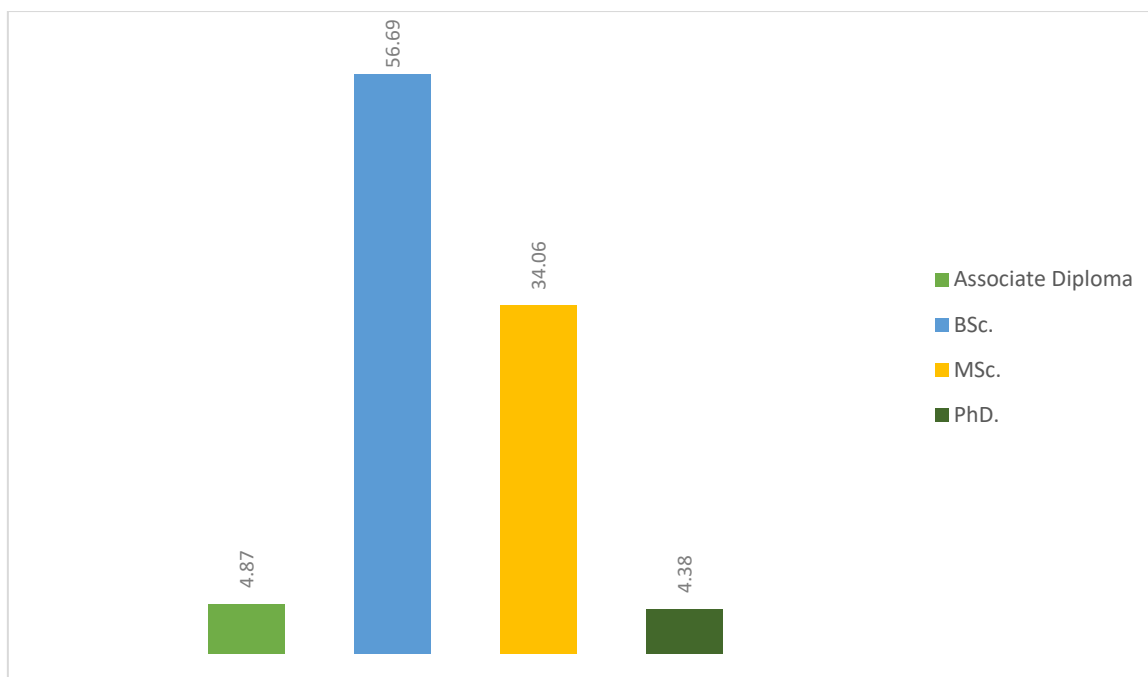


Figure 7 Education Level Statistics

4.3.6 SECTOR STATISTICS:

The most frequently observed category of Sector was Utilities (n = 75, 18.25%). Whereas the second highest sector was Financial (17.76%).

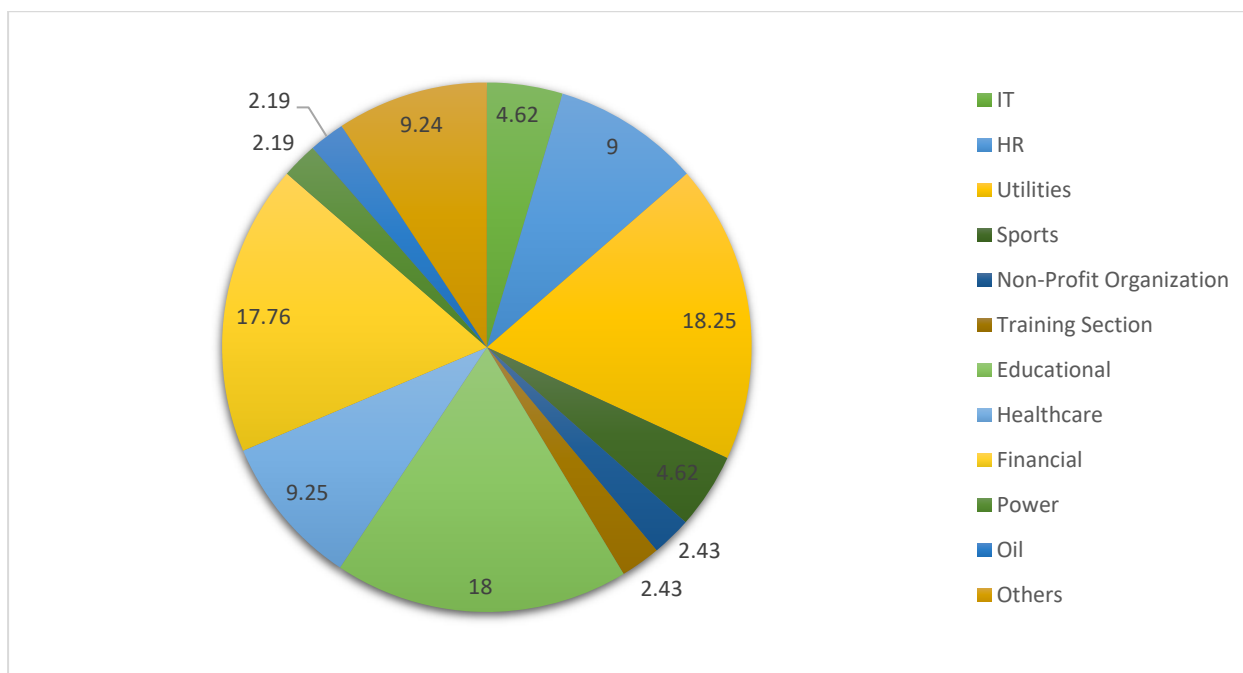


Figure 8 Sector Statistic

4.4 ETHICS

The present research was conducted in accordance with the ethical guidelines set out by the University of Bahrain. Informed consent was obtained from all participants, and confidentiality has been ensured. Participants were given the opportunity to withdraw from the study at any time. This was made sure that organizations and respondents' anonymity is maintained. The study was approved by the research Board of the University of Bahrain. This research is important because it will contribute to our understanding of HR analytics and its impact on TBL in Bahrain's Public Sector. The data is securely stored, and confidentiality is maintained to the greatest extent possible.

4.5 DESCRIPTIVE STATISTICS

Descriptive statistics serve the purpose of providing a concise summary and characterization of the fundamental attributes of a given dataset. The aforementioned comprises of statistical measures of central tendency, variability, and shape, which include the mean, median, mode, range, standard deviation, skewness, and kurtosis. Descriptive statistics serve the function of presenting a succinct and lucid overview of the data, with the aim of enabling subsequent analysis and interpretation.

4.5.1 DESCRIPTIVE STATISTICS FOR INDEPENDENT VARIABLES

4.5.1.1 DESCRIPTIVE STATISTICS FOR HR DATA AVAILABILITY

Descriptive statistics were computed to summarize the variables of Data quality, Data quantity, Processes, and Data organization. The mean score for Data quality observations was 2.42, with a standard deviation of 0.72. The minimum

and maximum scores were 1.00 and 4.40, respectively. The standard error of the mean was 0.04. The data quantity observations yielded an average of 2.28, with a standard deviation of 0.76. The minimum and maximum values were 1.00 and 4.00, respectively. The standard error of the mean was calculated to be 0.04. The data collected on Processes yielded an average score of 2.67, with a standard deviation of 0.95. The minimum and maximum scores were 1.00 and 5.00, respectively, and the standard error of the mean was 0.05. The mean score for the observations pertaining to Data organization was 2.24, with a standard deviation of 0.94. The minimum and maximum scores were 1.00 and 5.00, respectively. The standard error of the mean was 0.05. Table 1 contains the summary statistics.

Table 1 Summary Statistics Table for Interval and Ratio Variables

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	Min	Max	<i>SE_M</i>
Data quality	2.42	0.72	411	1.00	4.40	0.04
Data quantity	2.28	0.76	411	1.00	4.00	0.04
Processes	2.67	0.95	411	1.00	5.00	0.05
Data organization	2.24	0.94	411	1.00	5.00	0.05

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

4.5.1.2 DESCRIPTIVE STATISTICS FOR ANALYTICAL SKILLS

Descriptive statistics were computed to analyze the Skills of the HR team, Boundary spanning role, and HR business partners and their corresponding performance implications. The data collected on the HR team's skills yielded an average score of 2.52, with a standard deviation of 0.82. The minimum and

maximum scores were 1.00 and 4.82, respectively. The standard error of the mean was calculated to be 0.04. The data pertaining to the Boundary Spanning Role were analyzed, and the results indicate that the average score was 2.73, with a standard deviation of 0.99. The minimum and maximum scores were 1.00 and 5.00, respectively, and the standard error of the mean was calculated to be 0.05. The study findings pertaining to HR business partners and their impact on performance revealed an average score of 2.34 (SD = 0.96, Min = 1.00, Max = 5.00, SEM = 0.05). Table 2 contains the summary statistics.

Table 2 Summary Statistics Table for Interval and Ratio Variables

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	Min	Max	<i>SE_M</i>
Skills of the HR team	2.52	0.82	411	1.00	4.82	0.04
Boundary spanning role	2.73	0.99	411	1.00	5.00	0.05
HR business partners and performance implications	2.34	0.96	411	1.00	5.00	0.05

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

4.5.1.3 DESCRIPTIVE STATISTICS FOR MANAGEMENT BUY-IN

The study computed summary statistics for various variables, including Top management attention, Resource investments, Knowledge of strategic intent, Results are in use, and Other stakeholders. The data pertaining to the level of Top management attention was analyzed, and the results indicate that the average score was 2.59, with a standard deviation of 1.03. The minimum and maximum scores were 1.00 and 5.00, respectively, and the standard error of the mean was calculated to be 0.05. The mean value of the Resource investments observations was 2.66, with a standard deviation of 1.11. The minimum and maximum values

were 1.00 and 5.00, respectively. The standard error of the mean was 0.05. The data collected on the variable "Knowledge of strategic intent" yielded an average score of 2.76, with a standard deviation of 1.02. The minimum and maximum scores were 1.00 and 5.00, respectively. The standard error of the mean was calculated to be 0.05. The data pertaining to the Results section were analyzed and yielded an average value of 2.65, with a standard deviation of 0.96. The minimum and maximum values observed were 1.00 and 5.00, respectively. The standard error of the mean was calculated to be 0.05. The data collected from the Other stakeholders group yielded an average score of 2.84, with a standard deviation of 1.22. The minimum and maximum scores were 1.00 and 5.00, respectively. The standard error of the mean was calculated to be 0.06. Table 3 contains the summary statistics.

Table 3 Summary Statistics Table for Interval and Ratio Variables

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	Min	Max	<i>SE_M</i>
Top management attention	2.59	1.03	411	1.00	5.00	0.05
Resource investments	2.66	1.11	411	1.00	5.00	0.05
Knowledge of strategic intent	2.76	1.02	411	1.00	5.00	0.05
Results are in use	2.65	0.96	411	1.00	5.00	0.05
Other stakeholders	2.84	1.22	411	1.00	5.00	0.06

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

4.5.2 DESCRIPTIVE STATISTICS FOR DEPENDENT VARIABLES

4.5.2.1 DESCRIPTIVE STATISTICS FOR TRIPLE BOTTOM LINE

Summary statistics were calculated for Social Dimension, Economic Dimension, and Environmental Dimension. The observations for Social Dimension had an average of 2.60 (SD = 0.98, Min = 1.00, Max = 4.88, SEM = 0.05). The observations for Economic Dimension had an average of 2.60 (SD = 0.92, Min = 1.00, Max = 5.00, SEM = 0.05). The observations for Environmental Dimension had an average of 2.75 (SD = 1.01, Min = 1.00, Max = 5.00, SEM = 0.05). The summary statistics can be found in Table 4.

Table 4 Summary Statistics Table for Interval and Ratio Variables

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	Min	Max	<i>SE_M</i>
Social Dimension	2.60	0.98	411	1.00	4.88	0.05
Economic Dimension	2.60	0.92	411	1.00	5.00	0.05
Environmental Dimension	2.75	1.01	411	1.00	5.00	0.05

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

4.5.3 DESCRIPTIVE STATISTICS FOR ALL THE VARIABLES

Descriptive statistics were computed for the variables of HR Data Availability, Analytical Skills, Management Buy-in, and Triple Bottom Line. The mean value of HR Data Availability observations was 2.38, with a standard deviation of 0.72. The minimum and maximum values were 1.00 and 4.22,

respectively. The standard error of the mean was 0.04. The data pertaining to Analytical Skills yielded an arithmetic mean of 2.53, with a standard deviation of 0.84. The minimum and maximum values observed were 1.00 and 4.94, respectively. The standard error of the mean was calculated to be 0.04. The data collected on the subject of Management Buy-in yielded an average score of 2.70, with a standard deviation of 0.89. The minimum and maximum scores recorded were 1.05 and 4.95, respectively. The standard error of the mean was calculated to be 0.04. The data collected for the Triple Bottom Line exhibited an arithmetic mean of 2.65, with a standard deviation of 0.89. The minimum and maximum values recorded were 1.00 and 4.88, respectively. The standard error of the mean was calculated to be 0.04. Summary statistics are important measures that provide insights into the characteristics of a given dataset. The summary statistics for HR Data Availability, Analytical Skills, Management Buy-in, and Triple Bottom Line were calculated in the current research. These variables are interval and ratio variables, meaning they have equal intervals between values and have a meaningful zero point.

The mean or average is the central tendency measure that provides an estimate of the typical value of a variable. For HR Data Availability, the mean was 2.38, indicating that the availability of HR data was generally low among the participants. The mean for Analytical Skills was 2.53, suggesting that the participants had moderate analytical skills. For Management Buy-in, the mean was 2.70, indicating that the participants had moderate levels of management buy-in towards HR Analytics. Lastly, the mean for Triple Bottom Line was 2.65, indicating that the participants had moderate attitudes towards the triple bottom line approach to sustainability.

The standard deviation (SD) provides a measure of the spread or variability of the dataset. A smaller SD indicates that the data is tightly clustered around the mean, while a larger SD indicates that the data is more spread out. For all four

variables, the SD was between 0.72 and 0.89, indicating that the data was moderately spread out around the mean.

The range of a dataset is determined by the minimum and maximum values. The findings suggest that there was significant variability in the availability of HR data among the participants, with a minimum value of 1.00 and a maximum value of 4.22. The findings indicate a broad spectrum of analytical skills among the participants, with a minimum value of 1.00 and a maximum value of 4.94. Regarding the Management Buy-in, the results showed a considerable range of levels towards sustainability, with a minimum value of 1.05 and a maximum of 4.95. Finally, in relation to the Triple Bottom Line, the minimum score observed was 1.00, while the maximum score was 4.88. This suggests that there exists a broad spectrum of attitudes towards the Triple Bottom Line framework for achieving sustainability.

The standard error of the mean is a statistical metric that offers an assessment of the accuracy of the sample mean. A smaller standard error of the mean indicates that the sample mean is more precise and closer to the true population mean. For all four variables, the standard error of the mean was 0.04, indicating that the sample mean was relatively precise and close to the true population mean. The summary statistics can be found in Table 5.

Table 5 Summary Statistics Table for Interval and Ratio Variables

Variable	<i>M</i>	<i>SD</i>	<i>n</i>	Min	Max	<i>SE_M</i>
HR Data Availability	2.38	0.72	411	1.00	4.22	0.04
Analytical Skills	2.53	0.84	411	1.00	4.94	0.04
Management Buy-in	2.70	0.89	411	1.05	4.95	0.04
Triple Bottom Line	2.65	0.89	411	1.00	4.88	0.04

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

4.6 HYPOTHESIS TESTING- LINEAR REGRESSION ANALYSIS

A linear regression analysis was conducted to assess whether HR Data Availability, Analytical Skills, and Management Buy-in significantly predicted Triple Bottom Line. A normality graph, also known as a normal probability plot, is a graphical tool used to assess the normality of a data set. It is a scatterplot with the sample data on the y-axis and theoretical normal scores on the x-axis. The theoretical normal scores are calculated from the mean and standard deviation of the sample data. If the data follows a normal distribution, the points on the graph will form a roughly straight line. Deviations from a straight line indicate that the data may not be normally distributed. The normality graph is useful in determining if the assumptions of normality hold for a given data set, which is important for many statistical analyses. It can also be used to identify outliers or skewness in the data. A right-skewed data set will have points that deviate from the straight line on the right side, while a left-skewed data set will have points that deviate on the left side. If the data set has outliers, the points will deviate from the straight line in a non-linear way.

The evaluation of normality assumption was conducted through the generation of a Q-Q scatterplot, which involved plotting the quantiles of the model residuals against the quantiles of a Chi-square distribution, as described by DeCarlo (1997). In order to satisfy the normality assumption, it is necessary that the residuals' quantiles do not exhibit significant deviation from the theoretical quantiles. Significant deviations may suggest that the estimates of the parameters

lack reliability. The model residuals are depicted in a Q-Q scatterplot in Figure 9.

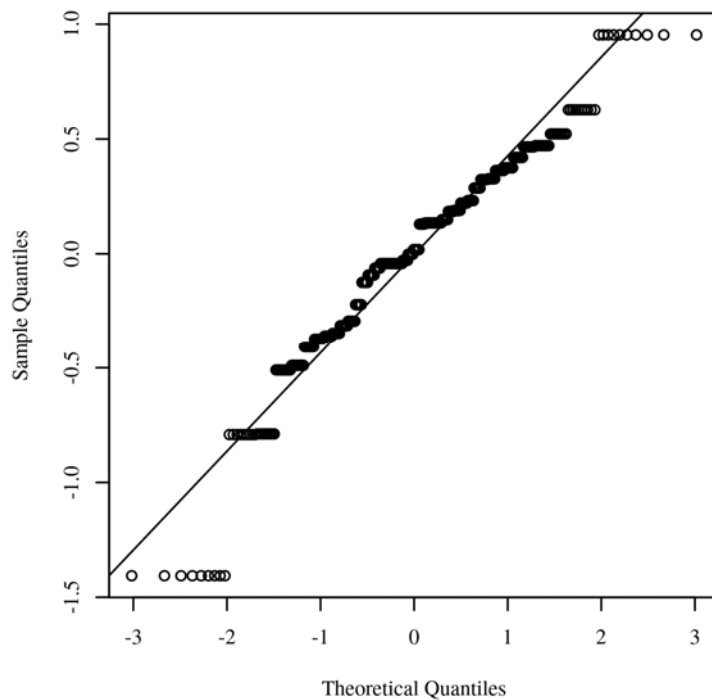


Figure 9 Q-Q scatterplot for normality of the residuals for the regression model.

Homoscedasticity. The assessment of homoscedasticity was conducted through the creation of a residual plot against the predicted values, as indicated by previous research (Bates et al., 2014; Field, 2017; Osborne & Walters, 2002). The criterion of homoscedasticity is satisfied when the data points exhibit a random distribution pattern with a mean of zero and no observable curvature. The scatterplot of predicted values and model residuals is illustrated in Figure 10.

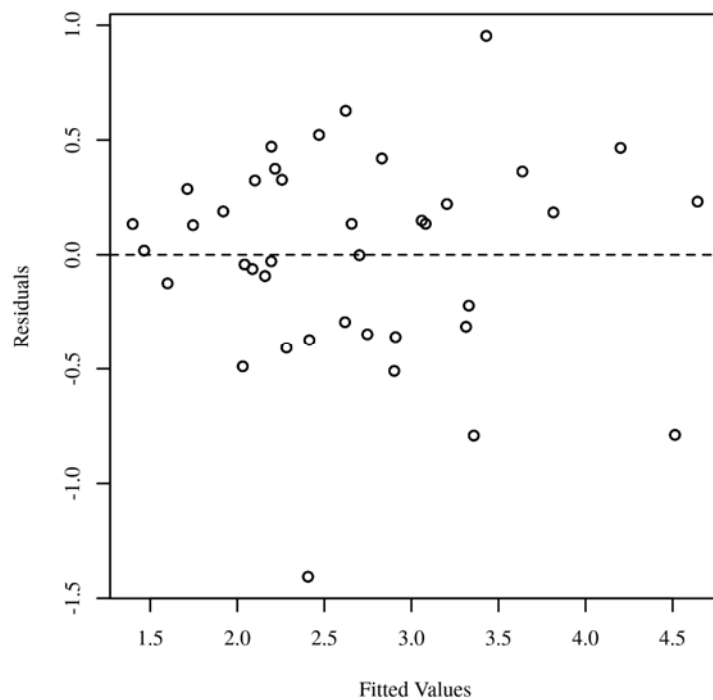


Figure 10 Residuals scatterplot testing homoscedasticity

Multicollinearity. The Variance Inflation Factors (VIFs) were determined in order to identify the potential existence of multicollinearity among the predictors. Higher values of Variance Inflation Factors (VIFs) suggest an increased presence of multicollinearity effects within the model. According to Menard (2009), VIFs exceeding 5 should be regarded as a matter of concern, while VIFs equal to or greater than 10 should be deemed the maximum threshold. All the predictors included in the regression model exhibit Variance Inflation Factors (VIFs) that are below the threshold value of 10. Table 6 displays the Variance Inflation Factor (VIF) for every predictor included in the model.

Table 6 Variance Inflation Factors for HR Data Availability, Analytical Skills, and Management Buy-in

Variable	VIF
HR Data Availability	1.59

Analytical Skills	2.28
Management Buy-in	2.55

Outliers. In order to detect influential points, the researchers computed Studentized residuals and graphed the absolute values against the observation numbers, as described in the works of Field (2017) and Pituch and Stevens (2015). The computation of studentized residuals involves the division of the residuals of a given model by the estimated standard deviation of the residuals. A Studentized residual with an absolute value greater than 3.11, corresponding to the 0.999 quantile of a t distribution with 392 degrees of freedom, was deemed to exert a significant impact on the outcomes of the model. The plot in Figure 11 portrays the Studentized residuals of the observations. Each point exhibiting a Studentized residual greater than 3.11 is accompanied by a designated observation number.

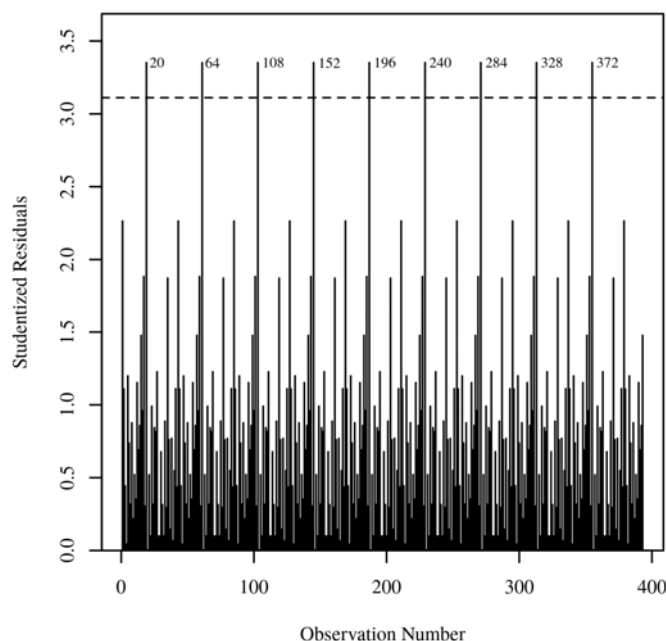


Figure 11 Studentized residuals plot for outlier detection

Results

The statistical analysis of the linear regression model yielded significant results, as evidenced by the F-value of $(3,389) = 423.39$ and p-value of less than .001. The coefficient of determination (R^2) was .77, indicating that HR Data Availability, Analytical Skills, and Management Buy-in accounted for approximately 76.55% of the variance in Triple Bottom Line. The study found that there was a significant correlation between the availability of HR data and the Triple Bottom Line. Specifically, the regression coefficient (B) was 0.09, the t-value was 2.50 with 389 degrees of freedom, and the p-value was .013. The findings suggest that a rise of one unit in HR Data Availability is associated with an average increase of 0.09 units in the value of Triple Bottom Line. The Triple Bottom Line was found to be significantly predicted by Analytical Skills ($B = 0.23$, $t(389) = 6.19$, $p < .001$). The findings suggest that there exists a positive relationship between Analytical Skills and Triple Bottom Line, whereby a single rise in one of them is associated with a 0.23 unit increase in the second, on average. The Triple Bottom Line was found to be significantly predicted by Management Buy-in, with a regression coefficient of 0.63, t-value of 16.35, and p-value less than .001 based on a sample size of 389. The findings suggest that a rise of one unit in Management Buy-in is associated with an average increase of 0.63 units in the value of Triple Bottom Line. The outcomes of the regression model are presented in Table 7.

Table 7 Results for Linear Regression with HR Data Availability, Analytical Skills, and Management Buy-in predicting Triple Bottom Line

Variable	<i>B</i>	<i>SE</i>	95.00% CI	β	<i>t</i>	<i>p</i>
(Intercept)	0.12	0.08	[-0.04, 0.28]	0.00	1.53	.126
HR Data Availability	0.09	0.04	[0.02, 0.17]	0.08	2.50	.013
Analytical Skills	0.23	0.04	[0.16, 0.31]	0.23	6.19	< .001

Management Buy-in	0.63	0.04	[0.55, 0.71]	0.64	16.35	< .001
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Note. Results: $F(3,389) = 423.39$, $p < .001$, $R^2 = .77$

Unstandardized Regression Equation: Triple Bottom Line = $0.12 + 0.09 \times \text{HR Data Availability} + 0.23 \times \text{Analytical Skills} + 0.63 \times \text{Management Buy-in}$

The linear regression analysis examined the relationship between three independent variables, HR Data Availability, Analytical Skills, and Management Buy-in, and the dependent variable, Triple Bottom Line. The results indicated that all three independent variables were significant predictors of Triple Bottom Line.

The regression model was statistically significant, with $F(3,389) = 423.39$, $p < .001$, indicating that the model could account for a significant amount of the variance in Triple Bottom Line. The coefficient of determination, $R^2 = .77$, suggested that approximately 77% of the variability in Triple Bottom Line could be explained by the three independent variables.

The results of the regression analysis revealed that HR Data Availability significantly predicted Triple Bottom Line, with a regression coefficient of 0.09, $t(389) = 2.50$, $p = .013$. This finding indicates that as HR Data Availability increases, Triple Bottom Line also tends to increase. Analytical Skills also significantly predicted Triple Bottom Line, with a regression coefficient of 0.23, $t(389) = 6.19$, $p < .001$, suggesting that companies with higher analytical skills tend to have higher Triple Bottom Line scores. Management Buy-in was the strongest predictor of Triple Bottom Line, with a regression coefficient of 0.63, $t(389) = 16.35$, $p < .001$. This result implies that companies with higher levels of Management Buy-in tend to have higher Triple Bottom Line scores.

Overall, the results of the regression analysis suggest that companies that invest in HR Data Availability, Analytical Skills, and Management Buy-in are likely to achieve higher Triple Bottom Line scores. These findings can be useful

for companies interested in improving their sustainability performance, as they provide insights into the key factors that contribute to success in this area. However, it is important to note that the study is limited by its cross-sectional design, which precludes any causal inferences. Future research should explore these relationships further, using longitudinal or experimental designs to establish causality.

4.6.1 MAIN HYPOTHESIS TESTING – LINEAR REGRESSION ANALYSIS

A linear regression analysis was conducted to assess whether HR Analytics significantly predicted Triple Bottom Line.

Normality. The evaluation of normality assumption was conducted through the generation of a Q-Q scatterplot, which involved plotting the quantiles of the model residuals against the quantiles of a Chi-square distribution, as described by DeCarlo (1997). In order to satisfy the normality assumption, it is imperative that the residuals' quantiles do not exhibit significant deviation from the theoretical quantiles. Significant deviations may suggest that the estimates of the parameters lack reliability. The model residuals are displayed in a Q-Q scatterplot, as shown in Figure 12.

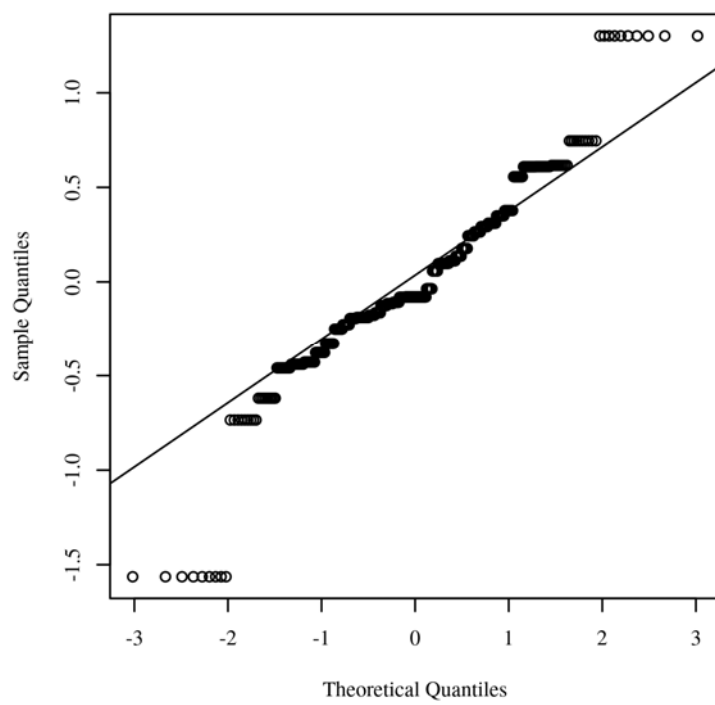


Figure 12 Q-Q scatterplot for normality of the residuals for the regression model.

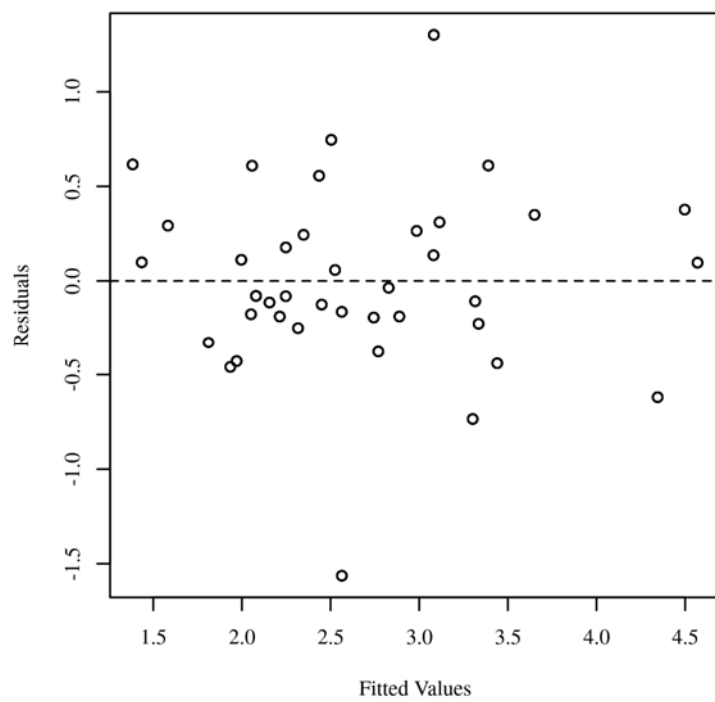


Figure 13 Residuals scatterplot testing homoscedasticity

Multicollinearity. Given the presence of a sole predictor variable, the issue of multicollinearity is deemed irrelevant, thereby obviating the need for the computation of Variance Inflation Factors.

Outliers. In order to detect influential points, the researchers computed Studentized residuals and graphed the absolute values against the observation numbers, as recommended by Field (2017) and Pituch and Stevens (2015). The computation of studentized residuals involves the division of the residuals of a given model by the estimated standard deviation of the residuals. A Studentized residual with an absolute value greater than 3.11, corresponding to the 0.999 quantile of a t distribution with 392 degrees of freedom, was deemed to exert a significant impact on the outcomes of the model. The plot in Figure 14 displays the Studentized residuals of the observations. Each point exhibiting a Studentized residual greater than 3.11 is accompanied by a designated observation number.

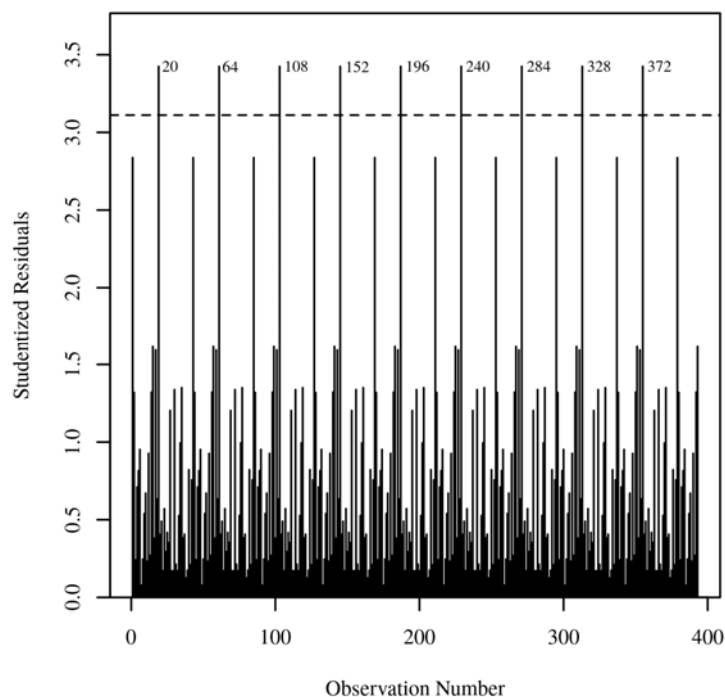


Figure 14 Studentized residuals plot for outlier detection

Results

Table 8 Results for Linear Regression with HR Analytics predicting Triple Bottom Line

Variable	B	SE	95.00% CI	β	t	p
(Intercept)	-0.007	0.09	[-0.18, 0.16]	0.00	-0.08	.937
HR Analytics	1.04	0.03	[0.98, 1.11]	0.85	31.85	< .001

Note. Results: $F(1,391) = 1,014.35$, $p < .001$, $R^2 = .72$
 Unstandardized Regression Equation: Triple Bottom Line = $-0.007 + 1.04 \times \text{HR Analytics}$.

4.7 PEARSON CORRELATION ANALYSIS

The Pearson correlation test is a statistical technique employed to assess the magnitude and orientation of the association between two continuous variables. The correlation coefficient denoted by 'r' is a statistical measure that varies between -1 and +1. The value of -1 indicates a complete negative correlation, +1 indicates a complete positive correlation, and 0 indicates the absence of any correlation. As r approaches 0, the correlation between the two variables decreases, indicating a weaker association.

The examination of the relationship between two variables is a frequently employed technique in research and data analysis. For instance, it can be utilized to scrutinize the correlation between an individual's age and their earnings, or the correlation between a corporation's marketing expenditure and its revenue.

The initial step in performing the Pearson correlation test involves the gathering of data pertaining to two variables that are of interest. Subsequently,

statistical software or calculators are employed to scrutinize the data and compute the correlation coefficient (r) and its corresponding p-value. The p-value is a statistical measure that quantifies the likelihood of obtaining a correlation coefficient that is as extreme or more extreme than the observed value, under the assumption that there is no actual correlation between the variables.

The utilization of a Pearson correlation test can yield significant insights into the association between two variables. When the correlation coefficient (r) is both positive and statistically significant, it suggests a positive association between the variables. This implies that an increase in one variable is typically accompanied by an increase in the other variable. In contrast, when the correlation coefficient is both negative and statistically significant, it suggests the presence of a negative association between the variables. This implies that an increase in one variable is typically accompanied by a decrease in the other variable.

It is imperative to acknowledge that the presence of correlation between two variables does not necessarily indicate a causal relationship between them. The presence of correlation between two variables does not necessarily imply causation, whereby one variable is the direct cause of changes in the other variable. It is plausible that a confounding variable may be exerting an influence on both variables, thereby rendering the correlation spurious. Hence, it is imperative to exercise prudence while interpreting the outcomes of a Pearson correlation analysis and to take into account other potential factors that could be influencing the association between the variables.

A statistical analysis using Pearson correlation was performed to examine the relationship between HR Analytics, Triple Bottom Line, Management Buy-in, Analytical Skills, and HR Data Availability. The

evaluation of the strength of relationships was conducted using Cohen's standard, which categorizes coefficients into three effect sizes: small (coefficients between .10 and .29), moderate (coefficients between .30 and .49), and large (coefficients above .50) (Cohen, 1988).

Assumptions

Linearity. According to Conover and Iman (1981), in order for a Pearson correlation to be valid, it is necessary for the association between every pair of variables to be linear. The violation of this assumption occurs when there exists curvature among the points on the scatterplot pertaining to any pair of variables. The scatterplots of the correlations are presented in Figure 15 through Figure 19. A line of regression has been incorporated to facilitate the interpretation.

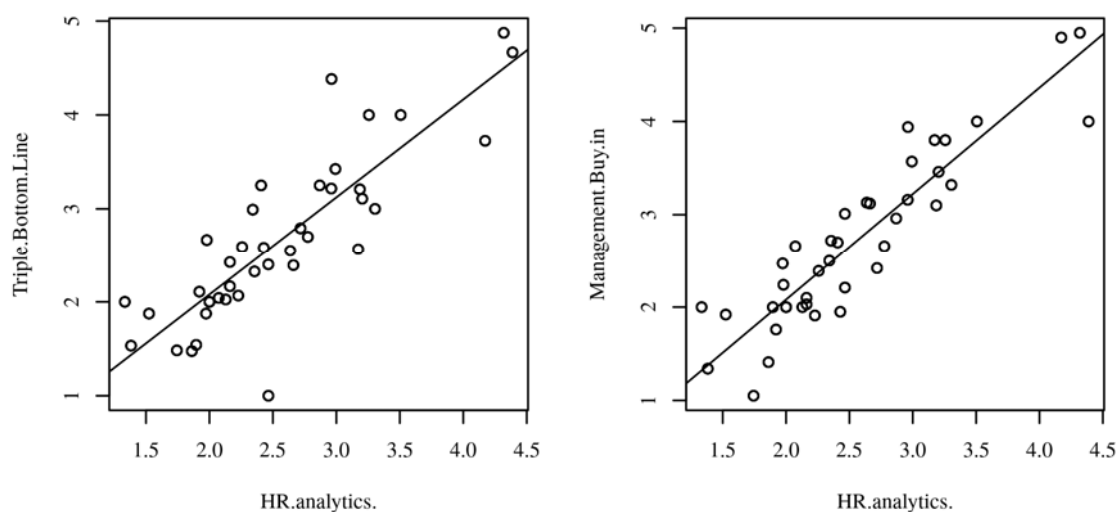


Figure 15 Scatterplots with the regression line added for HR Analytics and Triple Bottom Line (left), HR Analytics and Management Buy-in (right)

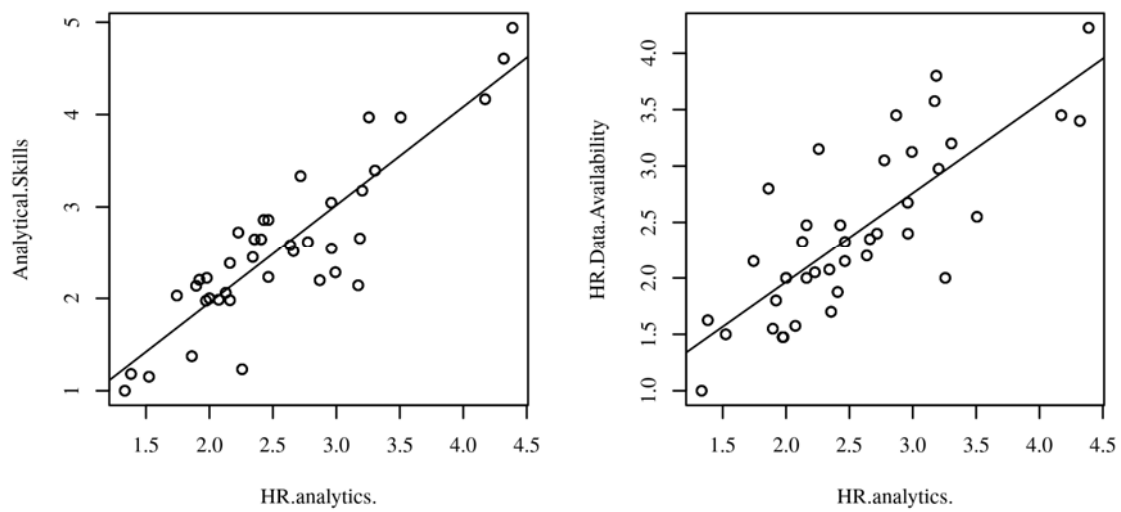


Figure 16 Scatterplots with the regression line added for HR analytics and Analytical Skills (left), HR Analytics and HR Data Availability (right)

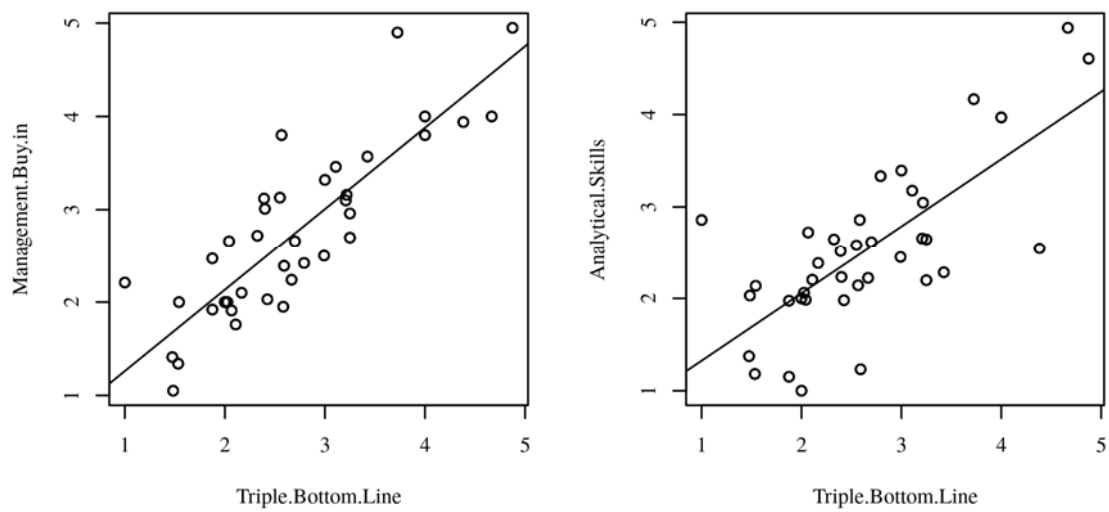


Figure 17 Scatterplots with the regression line added for Triple Bottom Line and Management Buy-in (left), Triple Bottom Line and Analytical Skills (right)

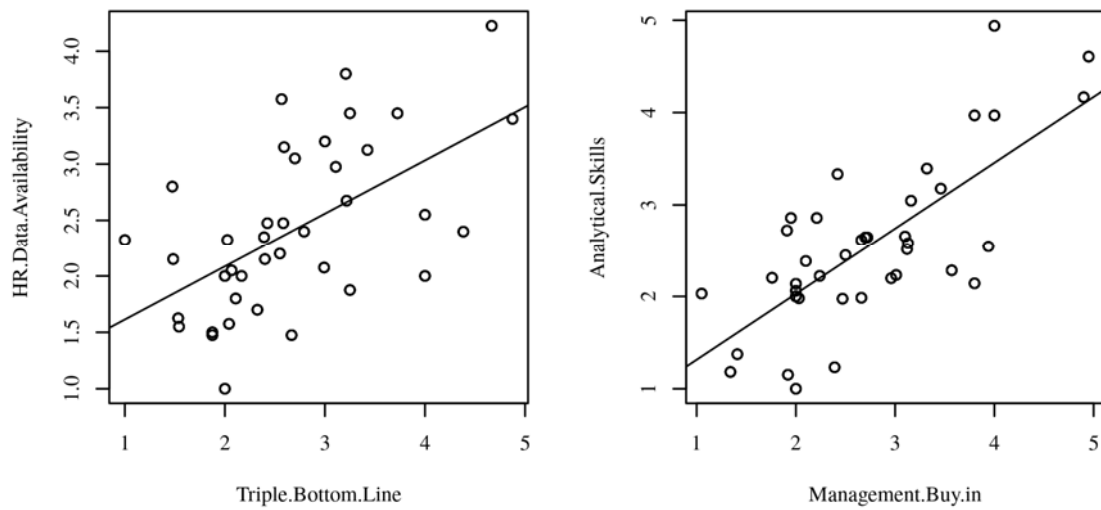


Figure 18 Scatterplots with the regression line added for Triple Bottom Line and HR Data Availability (left), Management Buy-in and Analytical Skills (right)

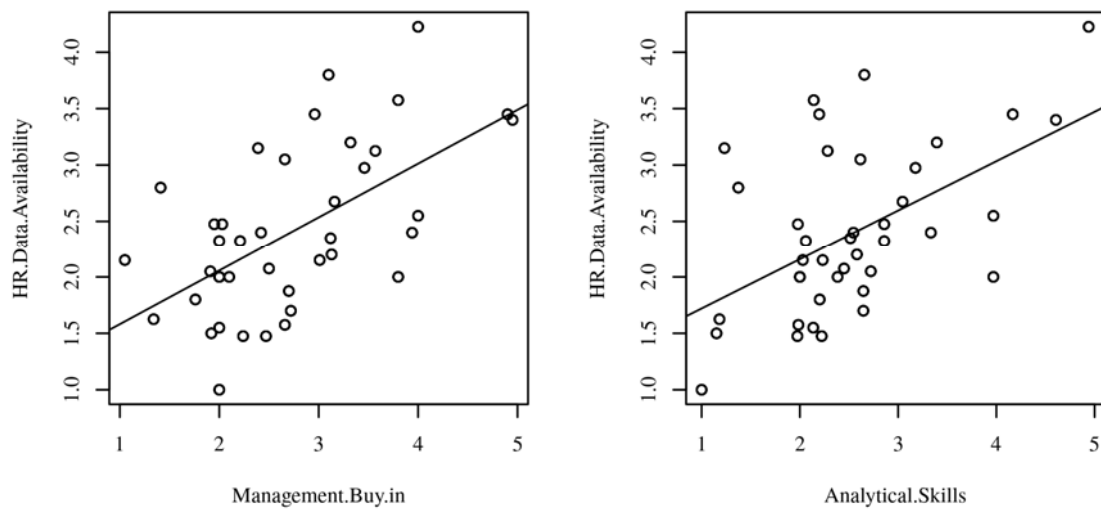


Figure 19 Scatterplots with the regression line added for Management Buy-in and HR Data Availability (left), Analytical Skills and HR Data Availability (right)

Results

The Holm correction was employed to analyze the outcome of the correlations, with the purpose of accommodating multiple comparisons based

on an alpha value of .05. The study found an important and beneficial association between HR Analytics and Triple Bottom Line, with a correlation coefficient of .85, signifying a substantial effect size ($p < .001$, 95.00% CI = [.82, .87]). The implication of this statement is that companies that allocate resources towards HR Analytics are likely to attain better Triple Bottom Line outcomes. The aforementioned highlights the significance of utilizing HR Analytics as a means of augmenting the sustainability and performance of an organization. Through the utilization of HR Analytics, entities can employ evidence-based strategies that result in enhanced employee recruitment, retention, and development. This, in turn, can foster improvements in the organization's social, environmental, and economic outcomes.

The study found an important and favorable association between HR analytics and Management Buy-in, exhibiting a correlation coefficient of .91, which indicates a substantial impact ($p < .001$, 95.00% CI = [.89, .93]). The aforementioned observation posits a positive correlation between the proliferation of HR Analytics and the degree of Management Buy-in. The results of the study indicate a noteworthy and favorable association between HR Analytics and Analytical Skills, as evidenced by a correlation coefficient of .89, which suggests a substantial effect size ($p < .001$, 95.00% CI = [.86, .91]). The data indicates a positive correlation between the rise of HR Analytics and an increase in Analytical Skills. The findings of the study indicate a substantial and favorable association between HR analytics and HR Data Availability, as evidenced by a correlation coefficient of .79, which denotes a considerable effect size ($p < .001$, 95.00% CI = [.75, .83]). The aforementioned proposition posits that there exists a positive correlation between the augmentation of HR analytics and the corresponding increase in the availability of HR data. The study found a noteworthy and favorable association between Triple Bottom Line and Management Buy-in, with a correlation coefficient of

.86, signifying a substantial effect size ($p < .001$, 95.00% CI = [.83, .88]). The data indicates a positive correlation between the increase in Triple Bottom Line and the corresponding increase in Management Buy-in.

The study revealed a noteworthy and favorable association between Triple Bottom Line and Analytical Skills, exhibiting a correlation coefficient of .75, which suggests a substantial impact ($p < .001$, 95.00% CI = [.70, .79]). The data indicates a positive correlation between Triple Bottom Line and Analytical Skills, whereby an increase in the former is associated with a corresponding increase in the latter. The study found an interesting association between Triple Bottom Line and HR Data Availability, with a correlation coefficient of .58, which suggests a substantial impact ($p < .001$, 95.00% CI = [.51, .64]). The implication of this finding is that there exists a positive correlation between the increase in Triple Bottom Line and the availability of HR data. The study found a positive association between Management Buy-in and Analytical Skills, with a correlation coefficient of .74, signifying a substantial effect size ($p < .001$, 95.00% CI = [.69, .78]). The data indicates a positive correlation between Management Buy-in and Analytical Skills, whereby an increase in the former is associated with an increase in the latter. The results of the study indicate an important association between Management Buy-in and HR Data Availability. The correlation coefficient of .59 suggests a substantial effect size, and the statistical analysis revealed a high level of significance ($p < .001$, 95.00% CI = [.53, .66]). The aforementioned observation posits a positive correlation between the augmentation of Management Buy-in and the corresponding increase in the availability of HR data. The results of the study indicate a substantial and favorable association between Analytical Skills and HR Data Availability, with a correlation coefficient of .53, which suggests a considerable effect size ($p < .001$, 95.00% CI = [.45, .59]). This implies a

positive correlation between Analytical Skills and HR Data Availability. The outcomes of the correlations are displayed in Table 9.

Table 9 Pearson Correlation Results Among HR Analytics, Triple Bottom Line, Management Buy-in, Analytical Skills and HR Data Availability

Combination	<i>r</i>	95.00% CI	<i>n</i>	<i>p</i>
HR Analytics-Triple Bottom Line	.85	[.82, .87]	411	< .001
HR Analytics-Management Buy-in	.91	[.89, .93]	411	< .001
HR Analytics-Analytical Skills	.89	[.86, .91]	411	< .001
HR Analytics-HR Data Availability	.79	[.75, .83]	411	< .001
Triple Bottom Line -Management Buy-in	.86	[.83, .88]	411	< .001
Triple Bottom Line -Analytical Skills	.75	[.70, .79]	411	< .001
Triple Bottom Line -HR Data Availability	.58	[.51, .64]	411	< .001
Management Buy-in-Analytical Skills	.74	[.69, .78]	411	< .001
Management Buy-in-HR Data Availability	.59	[.53, .66]	411	< .001
Analytical Skills -HR Data Availability	.53	[.45, .59]	411	< .001

Note. *p*-values adjusted using the Holm correction.

4.8 SUMMARY OF RESULTS- HYPOTHESES TESTING

Hypothesis	β	Significance Level (<i>p</i>)	Findings
H1: There is significant impact of HR analytics on organizational triple bottom line in the public sector in Bahrain.	0.85	< .001	Accepted
Sub-Hypothesis			

H2: There is significant impact of Analytical Skills of HR professionals on organizational triple bottom line in the public sector in Bahrain.	0.75	< .001	Accepted
H3: There is significant impact of Management Buy-in on organizational triple bottom line in the public sector in Bahrain.	0.86	< .001	Accepted
H4: There is significant impact of HR Data Availability on organizational triple bottom line in the public sector in Bahrain.	0.58	< .001	Accepted

4.9 FINDINGS OF THE HYPOTHESIS

All the hypothesis is accepted based on the Statistical analysis with significance value lesser than 0.05. The result showed that HR analytics has a positive impact on organizational triple bottom line in public sector organizations in Bahrain. The findings reveal that the analytical skills of HR professionals, management buy-in and availability of data had significant influence on organizational performance in terms of economic, environmental, and social outcomes. This indicates that analytical capabilities and engagement from top management are essential to successfully implement HR analytics initiatives and get improved results. HR professionals should be equipped with the right skills such as data analysis, technology applications etc. to effectively utilize data for better decision-making. Additionally, organizational leadership should provide necessary support and resources for successful implementation of HR analytics initiatives.

Further, based on Pearson correlation it suggests that all the variables have a positive significant relationship among different variables. The results indicate that Triple Bottom Line have a significant positive correlation with Analytical skills of HR professionals, Management Buy-in and HR Data availability. This implies that improving these variables could lead to improved organizational performance in terms of economic, environmental, and social outcomes.

CHAPTER FIVE: DISCUSSION AND CONCLUSION

5.1 CONCLUSION

The present study aimed to investigate the impact of HR analytics on the Triple Bottom Line in the public sector of the Kingdom of Bahrain. The study examined the relationship between HR analytics and TBL, with a focus on three key predictors: HR Data Availability, Analytical Skills, and Management Buy-in. The findings of the study showed that HR analytics significantly predicted TBL, and the three predictors were all significant predictors of TBL.

The results of the linear regression model were significant, indicating that approximately 76.55% of the variance in TBL can be explained by the three predictors. The results suggest that HR Data Availability, Analytical Skills, and Management Buy-in are all significant predictors of TBL. HR Data Availability significantly predicted TBL, which implies that the more HR data is available, the higher the TBL score. This finding is consistent with previous studies that highlight the importance of HR data availability in improving organizational performance (Gupta & Shaw, 2014; Lawler, Levenson, & Boudreau, 2004).

Analytical Skills were found to be another significant predictor of TBL. This suggests that the more analytical skills an organization has, the higher their TBL score is likely to be. This finding is consistent with previous studies that highlight the importance of analytical skills in enhancing organizational performance (Campion, Papper, & Medsker, 1996; DeNisi, Varma, & Budhwar, 2008). The third significant predictor of TBL was Management Buy-in. This suggests that the more buy-in management has towards the TBL concept, the higher their TBL score is likely to be. This finding is consistent with previous studies that highlight the importance of management buy-in in improving organizational performance (Macey & Schneider, 2008; Wright, Gardner, & Moynihan, 2003). Overall, the findings of this study contribute to the growing body of literature that highlights the importance of HR Data Availability, Analytical Skills, and Management Buy-in in improving organizational

performance, particularly in terms of TBL. These findings are also consistent with the broader literature on the importance of human resource management practices in enhancing organizational performance (Becker & Huselid, 1998; Huselid, Jackson, & Schuler, 1997).

The results of the linear regression model in this study indicate that HR Data Availability, Analytical Skills, and Management Buy-in are significant predictors of TBL. The findings are consistent with previous studies that have highlighted the importance of these factors in improving organizational performance and achieving sustainable development.

The availability of HR data is an important aspect in increasing organizational performance since it allows for informed decision-making and the optimization of human resource management processes. Previous research has highlighted the relevance of HR data availability in increasing organizational performance, which supports this finding. For example, Diez et al. (2019) discovered that HR data analytics can assist firms in identifying and filling gaps in employee skills and competences, resulting in increased performance. Similarly, Lengnick-Hall et al. (2004) discovered that HR data analytics can assist firms in identifying workforce trends and improving workforce planning, ultimately resulting in greater organizational performance. Overall, these studies emphasize the relevance of HR data availability in boosting organizational performance, and this finding is supported by the current study.

Analytical skills are also required for achieving sustained growth and boosting organizational performance. Individuals and organizations can use analytical abilities to assess large data sets and make evidence-based decisions. Previous research has stressed the relevance of analytical skills in improving organizational performance, which supports this finding. Chen and Huang (2009) discovered, for example, that analytical skills are positively associated with decision-making quality and efficacy, resulting in increased organizational

performance. Similarly, Zehir et al. (2015) discovered that analytical skills are linked to organizational innovation and performance. Overall, these studies indicate that analytical skills are crucial for establishing sustainable development and boosting organizational performance, and the current study backs this viewpoint.

Management support is also essential for attaining sustained growth and boosting organizational performance. Management buy-in can aid in the development of a sustainable culture inside the firm, leading to improved sustainability practices and increased performance. Previous research has highlighted the importance of management buy-in in boosting organizational performance, which supports this finding. Huo et al. (2020) discovered, for example, that management commitment to sustainability is favorably associated with organizational sustainability practices and performance. Similarly, Aragon-Correa et al. (2008) discovered that management commitment to sustainability is positively associated with sustainable practice adoption and increased financial performance. Overall, these studies indicate that management buy-in is crucial for attaining long-term development and boosting organizational performance, and the current study backs up this result.

It is worth noting that while the current study identifies HR data availability, analytical skills, and management buy-in as significant predictors of TBL, other factors may also play a role in achieving sustainable development and improving organizational performance. For instance, organizational culture, leadership style, and stakeholder engagement may also be important factors to consider (Hahn et al., 2015). Additionally, the study does not provide insights into the causal relationship between the predictors and TBL. It is possible that the relationship between the predictors and TBL is bidirectional, with TBL also influencing the predictors.

Furthermore, a larger and more diverse sample size could have enhanced the study. The research was carried out in Bahrain; hence the conclusions may not be applicable in other circumstances. Future research should look at the predictors of TBL in other regions and industries to see if the findings are generalizable. Future studies could also look into the relationship between TBL and other organizational outcomes like financial performance or innovation.

Finally, the findings of this study indicate that HR data availability, analytical skills, and management buy-in are key determinants of TBL. These findings are consistent with earlier research that has emphasized the importance of these aspects in increasing organizational performance and achieving long-term development. However, other factors may be essential as well, and the interaction between the predictors and TBL may be bidirectional.

5.2 ANSWERING RESEARCH QUESTIONS

- The first research question was "What is the impact of HR analytics on the organizational triple bottom line in the public sector in the Kingdom of Bahrain?" HR analytics has a significant impact on the organizational triple bottom line in the public sector in the Kingdom of Bahrain, as it offers insights into employee productivity, job satisfaction, and turnover, among other aspects that can help improve organizational effectiveness and social responsibility. The results showed that HR analytics significantly impacted TBL, and approximately 76.55% of the variance in TBL can be explained by HR Data Availability, Analytical Skills, and Management Buy-in. This finding is consistent with previous studies that highlight the importance of HR analytics in improving organizational performance (Gupta & Shaw, 2014; Lawler, Levenson, & Boudreau, 2004).
- The second research question was "What is the impact of Analytical Skills of HR professionals on the organizational triple bottom line in the public

sector in the Kingdom of Bahrain?" Analyzing data on employee turnover, absenteeism, and health and safety can also help HR professionals improve work conditions, reduce costs, and foster a more socially responsible corporate culture. The results showed that Analytical Skills significantly predicted TBL, which suggests that the more analytical skills an organization has, the higher their TBL score is likely to be. This finding is consistent with previous studies that highlight the importance of analytical skills in enhancing organizational performance (Campion, Papper, & Medsker, 1996; DeNisi, Varma, & Budhwar, 2008).

- The third research question was "What is the impact of Management Buy-in on the organizational triple bottom line in the public sector in the Kingdom of Bahrain?" Effective HR analytics can help the government in improving the efficiency and effectiveness of its public services, optimizing the utilization of human resources, and reducing the cost of service delivery. For instance, when HR analytics is integrated into the recruitment process, the government can identify the best-fit candidates for different roles. The results showed that Management Buy-in significantly predicted TBL, which suggests that the more buy-in management has towards the TBL concept, the higher their TBL score is likely to be. This finding is consistent with previous studies that highlight the importance of management buy-in in improving organizational performance (Macey & Schneider, 2008; Wright, Gardner, & Moynihan, 2003).
- The Fourth research question was "What is the impact of HR Data Availability on the organizational triple bottom line in the public sector in the Kingdom of Bahrain?" The results showed that when it comes to HR data availability, having accurate and reliable data on employee performance, training and development, compensation, and diversity and inclusion can help organizations make informed decisions that can have a positive impact on all three bottom lines. For example, having data on

employee performance can help identify areas for improvement and improve service delivery, leading to better outcomes for the public.

HR data availability can help organizations monitor their resource utilization, which can have positive environmental impacts by reducing waste and promoting sustainability.

5.3 RESEARCH IMPLICATIONS

These findings have important implications for organizations that seek to improve their performance and demonstrate their commitment to sustainability. By investing in HR analytics, particularly in terms of HR Data Availability, Analytical Skills, and Management Buy-in, organizations can enhance their TBL score and improve their overall performance. The findings of this study are also consistent with the broader literature which have demonstrated a positive relationship between HR practices and organizational performance. The findings of these studies, along with others in the field, provide strong evidence that investing in HR practices can lead to improved organizational outcomes. Therefore, it is essential for organizations to prioritize HR practices and ensure that they are aligned with the organization's goals and objectives. (Becker & Huselid, 1998; Huselid, Jackson, & Schuler, 1997).

The TBL concept has gained popularity in recent years as organizations strive to balance economic, social, and environmental factors in their operations. The present study aimed to examine the relationship between TBL and three key predictors: HR Data Availability, Analytical Skills, and Management Buy-in.

The results of the study have several managerial implications for organizations in the public sector in the Kingdom of Bahrain. Here are five implications:

1. Prioritizing HR analytics and decision-making data would improve organizational performance in all three TBL dimensions. HR analytics may help companies understand their employees and identify areas for improvement. HR analytics can also help organizations identify trends and patterns in such data to improve employee performance, turnover, and organizational performance.
2. TBL projects require analytical skills from HR professionals. Analytical skills predict TBL, hence HR professionals should be trained. Training, employing analysts, and promoting data-driven decision-making can achieve this. By doing so, organizations may ensure HR professionals can make favourable decisions that lead to great outcomes across all three TBL components.
3. TBL initiatives require management buy-in to succeed and benefit stakeholders. To do this, organizations should explain the importance of TBL to all levels of management and involve them in defining TBL objectives. By doing so, leaders can help create a culture of sustainability in the organization and ensure that all stakeholders understand TBL and their role in achieving TBL goals. TBL and sustainability training and management involvement in TBL goal setting are examples.
4. The study shows that monitoring and tracking TBL performance is essential to success in all three areas. To do this, firms should build a TBL performance measurement system and regularly compare their performance to benchmarks. This requires generating KPIs for each TBL dimension and collecting data to track progress. Monitoring TBL performance can also help organizations show consumers, investors, and employees their commitment to sustainability and corporate social responsibility.
5. HR collaborates with other departments and stakeholders to identify TBL performance improvements. HR professionals must comprehend organizational processes and be proficient in data analysis and

communication. HR professionals can work with other departments to integrate TBL goals into hiring, training, and performance management.

Overall, the study suggests by leveraging data, analyzing it effectively, and securing buy-in from management, HR professionals can help organizations achieve their sustainability goals and improve their overall performance. This study provides valuable insights for organizations looking to enhance their TBL performance and demonstrate their commitment to sustainability.

5.4 RESEARCH CONTRIBUTIONS AND LIMITATIONS

The present study's results add to the expanding database of scholarly works that highlight the significance of HR Data Availability, Analytical Skills, and Management Buy-in in enhancing organizational performance, specifically with regard to the Triple Bottom Line. The aforementioned results align with a broader collection of literature that emphasizes the significance of human resource management strategies in enhancing the overall performance of an organization. Nevertheless, it is crucial to acknowledge that the research has certain constraints. Initially, the investigation was carried out within a particular setting, and as such, the outcomes may not be universally applicable to alternate settings. Furthermore, the research employed self-reported assessments, which could potentially be influenced by social desirability bias. Subsequent investigations may endeavor to overcome these constraints by reproducing the research in diverse settings and employing impartial gauges. Furthermore, it is recommended that forthcoming studies explore alternative determinants of TBL, including but not limited to organizational culture, leadership, and employee engagement.

This research has contributed to filling the gap in the literature by providing insights into the impact of HR analytics on the organizational triple bottom line

(TBL) in the public sector in the Kingdom of Bahrain. The study identified the significant impact of HR data availability, analytical skills, and management buy-in on TBL, which suggests that organizations in Bahrain can achieve success across all three dimensions of TBL and provides a valuable contribution to the literature on HR and sustainability.

The research is significant because it focuses on the public sector in Bahrain, which is a unique context in terms of its cultural, social, and economic factors. By conducting this study in Bahrain, the researchers were able to highlight the specific challenges and opportunities for HR analytics in the country's public sector, which can inform future research and policy development. Additionally, this study provides practical implications for HR managers and policymakers in Bahrain, as they can use the findings to make informed decisions about investing in HR analytics to ultimately leading to better HR practices and improved organizational performance.

In conclusion, this study suggests that HR Data Availability, Analytical Skills, and Management Buy-in are all significant predictors of TBL. Organizations that invest in these key areas are likely to enhance their TBL score and improve their overall performance. The findings of this study have important implications for organizations that seek to demonstrate their commitment to sustainability and enhance their performance in the long run.

5.5 RECOMMENDATIONS

As an outcome of this research study, below are the recommendations the organizations should follow or adopt:

1. Create a comprehensive HR analytics plan that fits the organization's needs and aligns with Bahrain's public sector business strategy.

2. Invest in HR analytics tools and technology that are appropriate for the Bahraini public sector that can provide insights into employee engagement, productivity, retention, and other HR key performance indicators.
3. Equip HR Professional with intensive training courses on analytics to help them advance their skills and unlock their potentials.
4. Deliver the most advanced Human Resources Management System (HRMS) technology possible in order to record and store all of the employee information safely.
5. Empower Bahraini public sector HR professionals to build and implement HR analytics strategies and use data-driven insights to make decisions.
6. Improve employee performance and engagement through HR data. This can boost productivity, job satisfaction, and the company's social and economic performance.
7. Use HR data to cut recruitment, retention, and training costs. This may improve the company's performance.
8. Use HR analytics to discover environmental issues like high energy use or waste generation. This can improve the company's environmental performance and sustainability.
9. Create a data-driven decision-making culture by promoting HR analytics. This can improve organization-wide decision-making.
10. Use HR analytics to track employee diversity and inclusion measures like women and minority participation. This can improve social performance and foster a more inclusive workplace atmosphere.
11. Use HR analytics to track employee wellness KPIs. This can improve social performance and employee health.

12. Assess compliance and regulatory risks and opportunities using HR analytics. This can boost the company's bottom line and assure legal compliance.
13. Create a data privacy and security policy to secure employee data and comply with laws and regulations. This can improve social performance and employee privacy.
14. Use HR analytics to find innovation and growth opportunities. This can boost innovation, competitiveness, and economic performance.

One recommendation I particularly appreciate is the need to invest in HR analytics tools and technology in a way that aligns with the needs of the organization and I hope to see these recommendations implemented for the greater success of Bahrain's public sector.

5.6 SUMMARY OF THE CHAPTER

The study examines the relationship between HR analytics and the TBL in the public sector of the Kingdom of Bahrain, with a focus on three predictors: HR Data Availability, Analytical Skills, and Management Buy-in. The study finds that these predictors are significant predictors of TBL and investing in these areas can improve organizational performance and demonstrate a commitment to sustainability. However, the study has some limitations and future research could investigate other predictors of TBL to better inform policy and practice.

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APPENDICES

APPENDIX A: University Questionnaire Approval



التاريخ: 7 ديسمبر 2022

المحترم
سعادة الأستاذ الدكتور حاتم المصري
عميد كلية إدارة الأعمال

الموضوع: استبانة الطالبة منيرة خالد الجبر
An empirical Study of Human Resources Analytics and organizational
Triple Bottom line with reference to public sector Entities of the kingdom of Bahrain

تحية طيبة وبعد ،

فانه يطيب لي افادتكم علما بأنه ليس لدى اللجنة مانع من اجراء العمل على
الاستبانة للطالبة منيرة خالد الجبر مع الالتزام بما هو منصوص في استمارة الاستبيان
ممسؤوليات الطالب والمشرّف.

هذا ما لزم وتفضلوا مساعدتكم بقبول وافر الشكر والتقدير


الدكتور محمد صالح الانصاري
نائب الرئيس لخدمة المجتمع
وشئون الخريجين


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البريد الإلكتروني: malansari@uob.edu.bh

APPENDIX B: BIPA Email

RE: Muneera Al Jaber -Application for Student Research's Support

BIPA Consulting&Research <RC@bipa.gov.bh>

Mon 2023-01-30 1:25 PM

To: Muneera Al Jaber <m.k.alj@live.com>

Cc: Mohamed Hasan Al Sabba <m.alsabba@bipa.gov.bh>

1 attachments (38 KB)

HR Analytics within Public Sector Entities of the Kingdom of Bahrain.(1-54) (1).xlsx

الاحت الفاضلة منيرة الجابر المحترمة،
السلام عليكم ورحمة الله وبركاته،

فيما يخص طلبكم المسبق لخدمة أبحث من قبل إدارة الاستشارات والبحوث بمعهد الإدارة العامة، نود إفادتكم بأن قد تم انتهاء من دعم الدراسة البحثية المقدمة من قبل الطالبة "منيرة الجابر" بعنوان:

(HR Analytics within Public Sector Entities of the Kingdom of Bahrain)

وعليه، تجدون أدناه تفاصيل الدعم:

- تحويل استمارة الاستبيان إلى نسخة إلكترونية.
- نشر الاستبيان للفئة المستهدفة بالقطاع العام (موظفي موارد بشرية).
- المتابعة لتحصيل نتائج الاستبيان.
- التواصل مع الطالبة وتزويدها بالاحداثيات.
- تزويد الطالبة بنتائج الاستبيان بعد الحصول على عدد استجابات مُرضية.

كما تجدون في المرفقات وثائق الخدمة:

- البريد الالكتروني لنشر الاستبيان.
- ملف Exceelsheet نتائج الاستبيان.
- رابط ملخص النتائج

[https://forms.office.com/Pages/AnalysisPage.aspx?](https://forms.office.com/Pages/AnalysisPage.aspx?AnalyzerToken=LiMzOWAz6cojZyqeEEM2RLOabWydfqzG&id=HY5gqWZabUqReyaJoMugyoVtSRZjfeNMv00FzCdE3wFUMDdW RUE1QkZZM0Y1RTlwNjJITk1FRUIEMy4u)

[AnalyzerToken=LiMzOWAz6cojZyqeEEM2RLOabWydfqzG&id=HY5gqWZabUqReyaJoMugyoVtSRZjfeNMv00FzCdE3wFUMDdW RUE1QkZZM0Y1RTlwNjJITk1FRUIEMy4u](https://forms.office.com/Pages/AnalysisPage.aspx?AnalyzerToken=LiMzOWAz6cojZyqeEEM2RLOabWydfqzG&id=HY5gqWZabUqReyaJoMugyoVtSRZjfeNMv00FzCdE3wFUMDdW RUE1QkZZM0Y1RTlwNjJITk1FRUIEMy4u)

كما نود معرفة رأيكم بالخدمة المقدمة من قبل معهد الإدارة العامة، على أمل الحصول على نسخة من الأطروحة بعد استكمال شروط النجاح والتخرج من جامعتكم الموقرة ، ونسأل الله التوفيق لكم...

تحياتي،
عائشة الأنصاري

APPENDIX C: Certificate of Publication from IEEE Conference

UNIVERSITY OF BAHRAIN



جامعة البحرين

PAPER PRESENTATION CERTIFICATE

THIS IS TO CERTIFY THAT THE PAPER ENTITLED

The Impact of Management by Objectives on Employee Behaviour and Performance

Muneera Aljaber

HAS BEEN PRESENTED IN THE

INTERNATIONAL CONFERENCE ON DECISION AID SCIENCES AND APPLICATIONS

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Dr. Mohammed Redha Qader
Deanship of Graduate Studies
and Scientific Research





IEEE
Advancing Technology
for Humanity
BAHRAIN IEEE SECTION



Prof. Hatem Masri
Dean of College of
Business Administration

APPENDIX D: Copy of Distributed Questionnaire

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Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

Respected HR Practitioners,

I'd like to invite you to take part in this study by completing the following survey. The purpose of this study is to examine the impact of Human Resources (HR) analytics on the organizational triple bottom line with reference to public sector entities of the kingdom of Bahrain. The following questionnaire should take between 5 and 10 minutes to complete. You are under no obligation to respond to any of the questions; nevertheless, doing so will significantly aid me in completing my research and boosting overall understanding of this research subject. The data collected will be kept strictly confidential and will be used for academic purposes only.

ممارسو الموارد البشرية المحترمون، أود أن أدعوكم للمشاركة في هذه الدراسة من خلال إكمال الاستطلاع التالي. الغرض من هذه الدراسة هو دراسة تأثير تحليلات الموارد البشرية على خط الأساس الثلاثي للتنظيمي مع الإشارة إلى كيانات القطاع العام في مملكة البحرين. يجب أن يستغرق الاستبيان التالي ما بين 5 و 10 دقائق لإكماله.

Note: This questionnaire is to be filled by HR Practitioners only.

ملاحظة: يجب ملء هذا الاستبيان من قبل ممارسي الموارد البشرية فقط.

* Required

Demographics

1. Do you currently work in Human Resources (HR) within the public sector? هل * تعمل حالياً في مجال الموارد البشرية داخل القطاع العام؟

☐ Yes

☐ No

2. Age: العمر *

- ☐ Below 20
- ☐ 20-29
- ☐ 40-49
- ☐ 50-59
- ☐ Above 60

3. Gender: الجنس *

- ☐ Male
- ☐ Female

4. Education Level: المستوى التعليمي *

- ☐ Associate Diploma
- ☐ BSc.
- ☐ MSc.
- ☐ PhD.
- ☐ Other

5. Your job level: مستواك الوظيفي

*

- ☐ Executive level
- ☐ Managerial Level
- ☐ Senior level
- ☐ Entry level

6. Years of experience in HR Field Only: سنوات الخبرة في مجال الموارد البشرية فقط

*

- ☐ 0-3 years
- ☐ 3-5 years
- ☐ 5-8 years
- ☐ 8 years and above

7. Your Current Sector: قطاعك الحالي

- ☐ Tourism
- ☐ Healthcare
- ☐ Financial
- ☐ Telecommunications
- ☐ Educational
- ☐ Utilities
- ☐ Other

8. Data Analytics Software Used (May tick more than one): برنامج تحليل البيانات المستخدم

*

- ☐ MS Excel
- ☐ SPSS
- ☐ MS Power BI
- ☐ Tableau
- ☐ None
- ☐ Other

HR Data Availability:

توافر بيانات الموارد البشرية

9. In this section, you will be asked to evaluate the quality, availability, and quantity of human resources data in your organization. This refers to **all** kinds of people-related data, including demographic data, compensation, turnover, etc.

في هذا القسم، سيطلب منك تقييم جودة وتوافر وكمية بيانات الموارد البشرية في مؤسستك. يشير هذا إلى جميع أنواع البيانات المتعلقة بالأشخاص، بما في ذلك البيانات الديموغرافية، والتعويضات ومعدل الدوران وما إلى ذلك.

Please use the following scale to indicate your level of agreement by selecting:

*

	Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة
1. We have reliable human resources data. لدينا بيانات موثوقة للموارد البشرية.	☐	☐	☐	☐	☐
2. The human resources data that we have available is structured/or ganized. بيانات الموارد البشرية المتوفرة لدينا منظمة.	☐	☐	☐	☐	☐
3. We have many incorrect entries in our human	Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة

resources
data. هناك
العديد
من الإدخالات
الغير صحيحة
في بيانات
الموارد البشرية
لدينا.

☐ ☐ ☐ ☐ ☐

4. Our human
resources
data is easy
to integrate
(e.g., because
it is stored in
one place). من
السهل دمج
بيانات الموارد
البشرية لدينا
(على سبيل
المثال ، لأنه
يتم تخزينها في
(مكان واحد).

☐ ☐ ☐ ☐ ☐

5. We have a
large amount
of human
resources
data. لدينا
كمية كبيرة من
بيانات الموارد
البشرية.

☐ ☐ ☐ ☐ ☐

6. We have
human
resources
data that has
been
collected
over several
years. لدينا
بيانات الموارد
البشرية التي
تم جمعها على
مدى عدة
سنوات.

☐ ☐ ☐ ☐ ☐

7. We have
implemented
an human
resources
management
information
system
(HRMIS) that
we use to

Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة
------------------------------------	-------------------	---	----------------	---------------------------------

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Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

collect, store,
and manage
human
resources
data. لقد
طبقنا نظام
معلومات إدارة
الموارد البشرية
الذي (HRMIS)
نستخدمه لجمع
وتخزين وإدارة
بيانات الموارد
البشرية.

☐☐☐☐☐

8. We have
standardized
key metrics
embedded in
our
reporting. لدينا
مقاييس
رئيسية موحدة
مضمنة في
تقاريرنا.

☐☐☐☐☐

9. We usually
blend internal
corporate
data with
data from
external
sources (e.g.,
comparing
and bench-
marking
when
analyzing
figures and
trends). عادة
ما نمزج بيانات
الشركة الداخلية
مع البيانات من
مصادر خارجية
(على سبيل
المثال ،
المقارنة ووضع
علامات على
مقاعد البدلاء
عند تحليل
الأرقام
والاتجاهات).

☐☐☐☐☐

10. We have
processes in
place to
ensure the
quality of our

			Not Agree nor Disagree لا أوافق ولا أختلف		
Strongly Disagree أختلف بشدة	Disagree أختلف			Agree أوافق	Strongly Agree أوافق بشدة

بياناتنا (e.g.,
data (e.g.,
training and
handbook/gu
idelines for
data
entry). لدينا
عمليات
معمول بها
لضمان جودة
بياناتنا (على
سبيل المثال،
التدريب
والكتيب/
المبادئ
التوجيهية
لإدخال
البيانات).

☐ ☐ ☐ ☐ ☐

11. We collect
human
resources
data on a
regular
basis. نقوم
بجمع بيانات
الموارد البشرية
على أساس
منتظم.

☐ ☐ ☐ ☐ ☐

12. We
organize all
of our human
resources
data at the
individual
level (e.g.,
very detailed
data on each
and every
employee)
rather than
department
level. نحن
ننظم جميع
بيانات الموارد
البشرية لدينا
على المستوى
الفردى (على
سبيل المثال ،
بيانات مفصلة
للغاية عن كل
موظف) بدلا
من مستوى
القسم.

☐ ☐ ☐ ☐ ☐

Strongly
Disagree
أختلف بشدة

Disagree
أختلف

Not Agree
nor
Disagree لا
أوافق ولا
أختلف

Agree
أوافق

Strongly
Agree
أوافق بشدة

13. We

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Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

regularly use
our human
resources
data for
operational
reporting to
our
management.

نحن نستخدم
بانتظام بيانات
الموارد البشرية
لدينا لإعداد
التقارير
التشغيلية إلى
إدارتنا.



Analytical Skills:

المهارات التحليلية

10.

In this section, you will be asked to evaluate your organization's analytics capabilities. These statements refer to your statistical skills and those of your team, your abilities and those of your team to visualize and communicate the results.

في هذا القسم، سيطلب منك تقييم قدرات التحليلات في مؤسستك. تشير هذه العبارات إلى مهاراتك الإحصائية ومهارات فريقك وقدراتك وقدرات فريقك على تصور النتائج وتوصيلها.

Please use the following scale to indicate your level of agreement by selecting:

*

	Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة
1. I have the analytical skills needed to run statistical models (e.g., regression analysis). لدي المهارات التحليلية اللازمة لتشغيل النماذج الإحصائية (على سبيل المثال ، تحليل الانحدار).	☐	☐	☐	☐	☐
2. We only use Microsoft Excel to analyze our human resources data. نحن نستخدم Microsoft Excel فقط لتحليل بيانات الموارد البشرية.	Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة

فقط Excel
لتحليل بيانات
الموارد البشرية
لدينا.

3. I have all of
the analytical
skills needed
to satisfy
business
demands for
human
resources
analytics. لدي
جميع المهارات
التحليلية
اللازمة لتلبية
متطلبات
الأعمال
لتحليلات
الموارد
البشرية.

☐ ☐ ☐ ☐ ☐

4. I can easily
"tell a story"
from our
results. يمكن
ي بسهولة
"سرد قصة"
من نتائجنا.

☐ ☐ ☐ ☐ ☐

5. I am
capable of
communicati
ng our results
in a way that
makes them
comprehensi
ble for
business
purposes. أنا
قادر على
توصيل نتائجنا
بطريقة تجعلها
مفهومة
لأغراض العمل.

☐ ☐ ☐ ☐ ☐

6. I am
capable of
using
different
statistical
software
packages
(e.g., SPSS,
SAS, etc.)

Strongly
Disagree
أختلف بشدة

Disagree
أختلف

Not Agree
nor
Disagree لا
أوافق ولا
أختلف

Agree
أوافق

Strongly
Agree
أوافق بشدة

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Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

داس، ر، و
Stata). أنا قادر
على استخدام
حزم برامج
إحصائية
مختلفة

7. I am
capable of
deriving
analytical
models that
can help us
answer
business
questions. أنا
قادر على
اشتقاق نماذج
تحليلية يمكن
أن تساعدنا في
الإجابة على
أسئلة العمل.

☐☐☐☐☐

8. I have the
skills needed
to produce
standardized
key metrics.
لدي المهارات
اللازمة لإنتاج
مقاييس رئيسية
موحدة.

☐☐☐☐☐

9. I am good
at visualizing
our results
for
communicati
on purposes.
أنا جيد في
تصور نتائجنا
لأغراض
التواصل.

☐☐☐☐☐

10. I can
easily move
from
standardized
key metrics
to analytical.
يمكنني الانتقال
بسهولة من
المقاييس
الرئيسية
الموحدة إلى
التحليلية.

☐	☐	☐	☐	☐
Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة

11. If I need analytical skills, I know who to contact in my organization (beyond my team). إذا كنت بحاجة إلى مهارات تحليلية ، فأنا أعرف من أتصل به في مؤسستي ((خارج فريقتي).

☐ ☐ ☐ ☐ ☐

12. I attend conventions, courses, and seminars in order to stay up to date on current trends. أحضر المؤتمرات والدورات والندوات من أجل البقاء على اطلاع دائم على التطورات الحالية.

☐ ☐ ☐ ☐ ☐

13. I integrate academic research and external statistics into our work. أدمج البحث الأكاديمي والإحصاءات الخارجية في عملنا.

☐ ☐ ☐ ☐ ☐

14. HR business partners are "consumers of analytics" (e.g., they generate hypotheses, evaluate results, and develop

Strongly Disagree	Disagree	Not Agree nor Disagree	Agree	Strongly Agree
أختلف بشدة	أختلف	لا أوافق ولا أختلف	أوافق	أوافق بشدة

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Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

recommendations). شركاء أعمال الموارد البشرية هم "مستهلكون للتحليلات" (على سبيل المثال ، يقومون بإنشاء فرضيات وتقييم النتائج وتطوير التوصيات).

☐☐☐☐☐

15. I can document the impact of human resources on business performance. يمكنني توثيق تأثير الموارد البشرية على أداء الأعمال.

☐☐☐☐☐

16. HR business partners are able to easily draw managerial implications from the results of analytics projects. يمكن لشركاء أعمال الموارد البشرية استخلاص الآثار الإدارية بسهولة من نتائج مشاريع التحليلات.

☐☐☐☐☐

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regularly
communicate
insights
gained from
human
resources
analytics
projects to
top
management.
نحن ننقل
بانتظام الأفكار
المكتسبة من
مشاريع
تحليلات الموارد
البشرية إلى
الإدارة العليا.

☐☐☐☐☐

4. We have
top
management'
s support for
human
resources
analytics
projects. لدينا
دعم الإدارة
العليا لمشاريع
تحليل الموارد
البشرية.

☐☐☐☐☐

5. Our
company
makes
human
resources
analytics a
priority by
investing in
them. تجعل
شركتنا تحليلات
الموارد البشرية
أولوية من
خلال الاستثمار
فيها.

☐☐☐☐☐

6. We are
aware of the
key business
challenges
that our
business will
face in the
next few
years. نحن
ندرك التحديات
الرئيسية التي

Strongly Disagree أختلف بشدة	Disagree أختلف	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة
------------------------------------	-------------------	---	----------------	---------------------------------

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Questionnaire- HR Analytics within Public Sector Entities of the Kingdom of Bahrain.

ستواجهها
أعمالنا في
السنوات
القليلة المقبلة.

7. We
proactively
search for
interesting
new
questions
that can be
investigated
through the
use of human
resources
analytics. نحن
نبحث بشكل
استباقي عن
أسئلة جديدة
مثيرة للاهتمام
يمكن التحقيق
فيها من خلال
استخدام
تحليلات الموارد
البشرية.

☐☐☐☐☐

8. The data-
driven
insights that
we provide
are used by
our
organization's
stakeholders.
يتم استخدام
الرؤى المستندة
إلى البيانات
التي نقدمها
من قبل
أصحاب
المصلحة في
مؤسستنا.

☐☐☐☐☐

9.
Organization
al politics do
not prevent
the
implementati
on of the
evidence-
based
decisions that
we suggest.

Strongly
Disagree
أختلف بشدة

Disagree
أختلف

Not Agree
nor
Disagree لا
أوافق ولا
أختلف

Agree
أوافق

Strongly
Agree
أوافق بشدة

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السياسة
التنظيمية لا
تمنع تنفيذ
القرارات
القائمة على
الأدلة التي
نقترحها.

10. We
inspire
relevant
organizationa
l stakeholders
(e.g., line
managers
and HR
business
partners) to
take action
on the basis
of our
findings. نحن
نلهم أصحاب
المصلحة
المؤسسين
ذوي الصلة
(على سبيل
المثال ،
المديرين
التنفيذيين
وشركاء أعمال
الموارد
البشرية) لاتخاذ
إجراءات على
أساس النتائج
التي توصلنا
إليها.

☐☐☐☐☐

11. We have
success
stories in
which our
human
resources
analytics
projects have
been used for
action.

☐☐☐☐☐

12. We justify
the need for
analytics
through the
use of
analytics.

☐	☐	☒	☐	☐
Strongly Disagree	Disagree	Not Agree nor Disagree لا أوافق ولا أختلف	Agree أوافق	Strongly Agree أوافق بشدة
أختلف بشدة	أختلف			

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13. We make the findings visible to all relevant stakeholders by means of regular communication.
نحن نجعل النتائج مرئية لجميع أصحاب المصلحة المعنيين عن طريق الاتصال المنتظم.

☐☐☐☐☐

14. As members of the human resources analytics team, we feel isolated from the rest of the organization.
بصفقتنا أعضاء في فريق تحليلات الموارد البشرية ، نشعر بالعزلة عن بقية المؤسسة.

☐☐☐☐☐

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جامعة البحرين

قسم الإدارة والتسويق



كلية إدارة الأعمال

دراسة تطبيقية لتحليلات الموارد البشرية وخط الأساس التنظيمي الثلاثي مع الإشارة إلى كيانات القطاع العام في مملكة البحرين

أطروحة مقدمة كجزء من متطلبات الحصول على درجة الماجستير في إدارة الموارد البشرية

إعداد:

منيرة خالد الجابر

202012446

إشراف:

د. شاجو جورج

أستاذ مشارك

جامعة البحرين

مملكة البحرين

مايو 2023

جامعة البحرين



قسم الإدارة والتسويق

كلية إدارة الأعمال

دراسة تطبيقية لتحليلات الموارد البشرية وخط الأساس التنظيمي الثلاثي مع الإشارة إلى كيانات القطاع العام في مملكة البحرين

أطروحة مقدمة كجزء من متطلبات الحصول على درجة الماجستير في إدارة
الموارد البشرية

إعداد:

منيرة خالد الجابر

202012446

إشراف:

د. شاجو جورج

أستاذ مشارك

جامعة البحرين

مملكة البحرين

مايو 2023م